Issue 119

PS

1962 Series

THE PREVENTIVE MAINTENANCE MONTHLY

HE'S YOUR MAN

There are "key men"... and then, there are "key men."

As you and everybody who is anybody knows, the real key man in your outfit is **you.**

When it comes to maintenance, tho, who (besides yourself) is the key man in your unit?

Sure he is... your own C.O. Naturally.

For that buddy of yours who's the doubting Thomas, here's why—

Your C.O. has overall responsibility for your outfit's equipment—how it will perform in combat—just like AR 750-5, para 20 says.

For that reason, when it comes to the business of keeping his equipment maintained, he'll see—

—That you get the parts, tools, lubes, fuels and other things you need for the job.

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—That you get all the tech manuals, supply manuals, lube orders, forms and other pubs you need to do maintenance.

—That you and your buddies get enough of the right kind of training in operating and maintaining your equipment.

—That you get enough time to keep your equipment maintained.

After all this, he gives it the eagle-eye to make sure your equipment will perform when it's called on.

So—when (or before) you hit a stumbling block and need help in maintaining your equipment — pass the word to that other "key man" ... your C.O. Keep him clued in.

He'll make sure you get what you need to do the job.

You want to know why? Because he knows that his outfit is only as good as its fighting equipment. And, he'll never neglect that.

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Sgt. Half-Mast,
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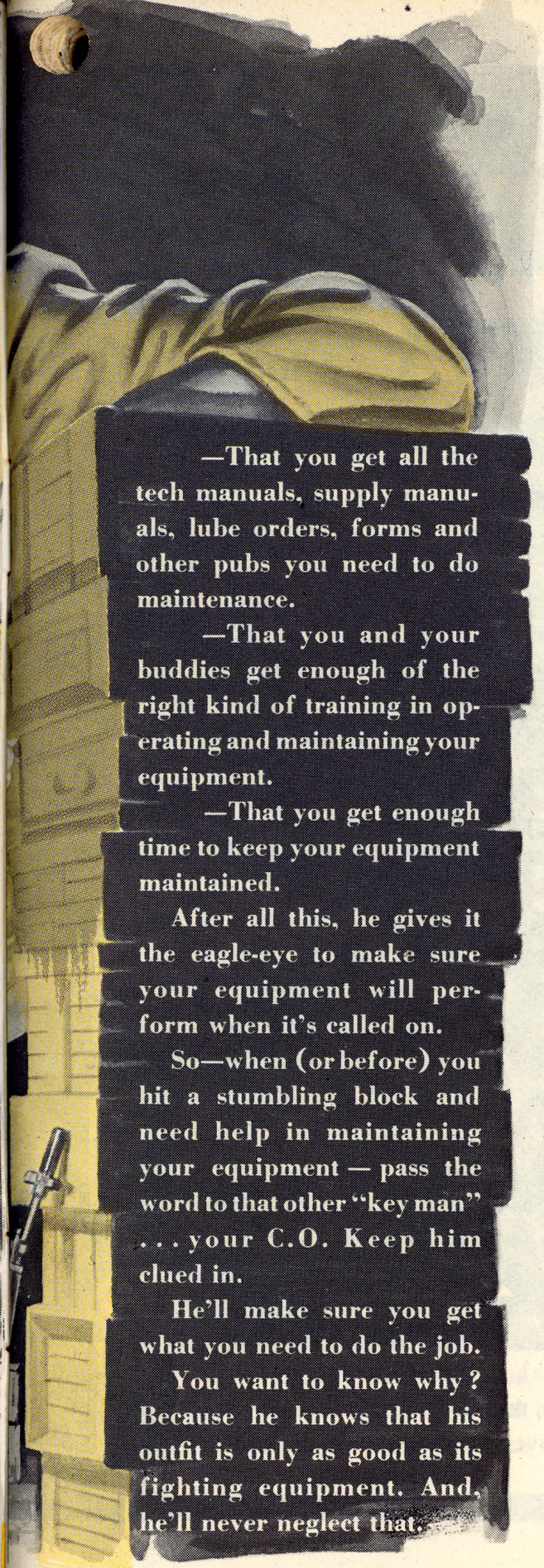

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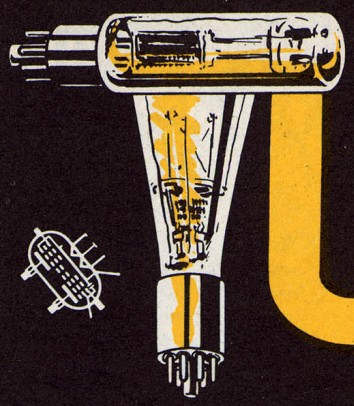

If all the electron tubes in this man's army were laid end to end . . . well, chances are somebody would step on one, so forget it.

Anyway, there're a lot of tubes around, made up of different things

to do a number of jobs that nothing else can do. It's what's inside them that counts . . . and it's what's inside them that clues you on how they're to be handled and disposed of.

Some tubes contain radioactive material, and this introduces an element of danger right off the bat. Just how much danger is one of those things the experts figure it's better to over-estimate than under-estimate.

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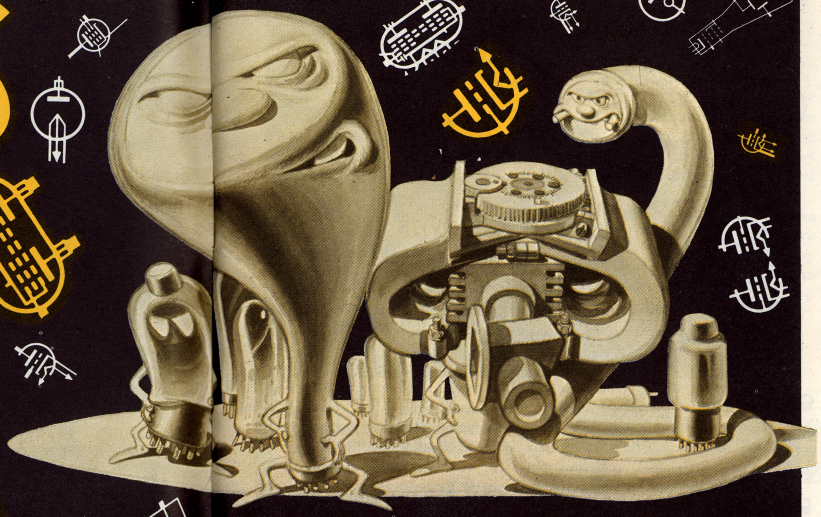

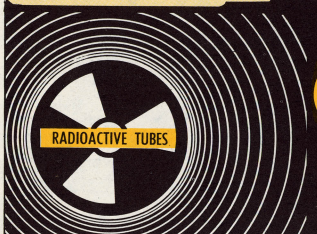

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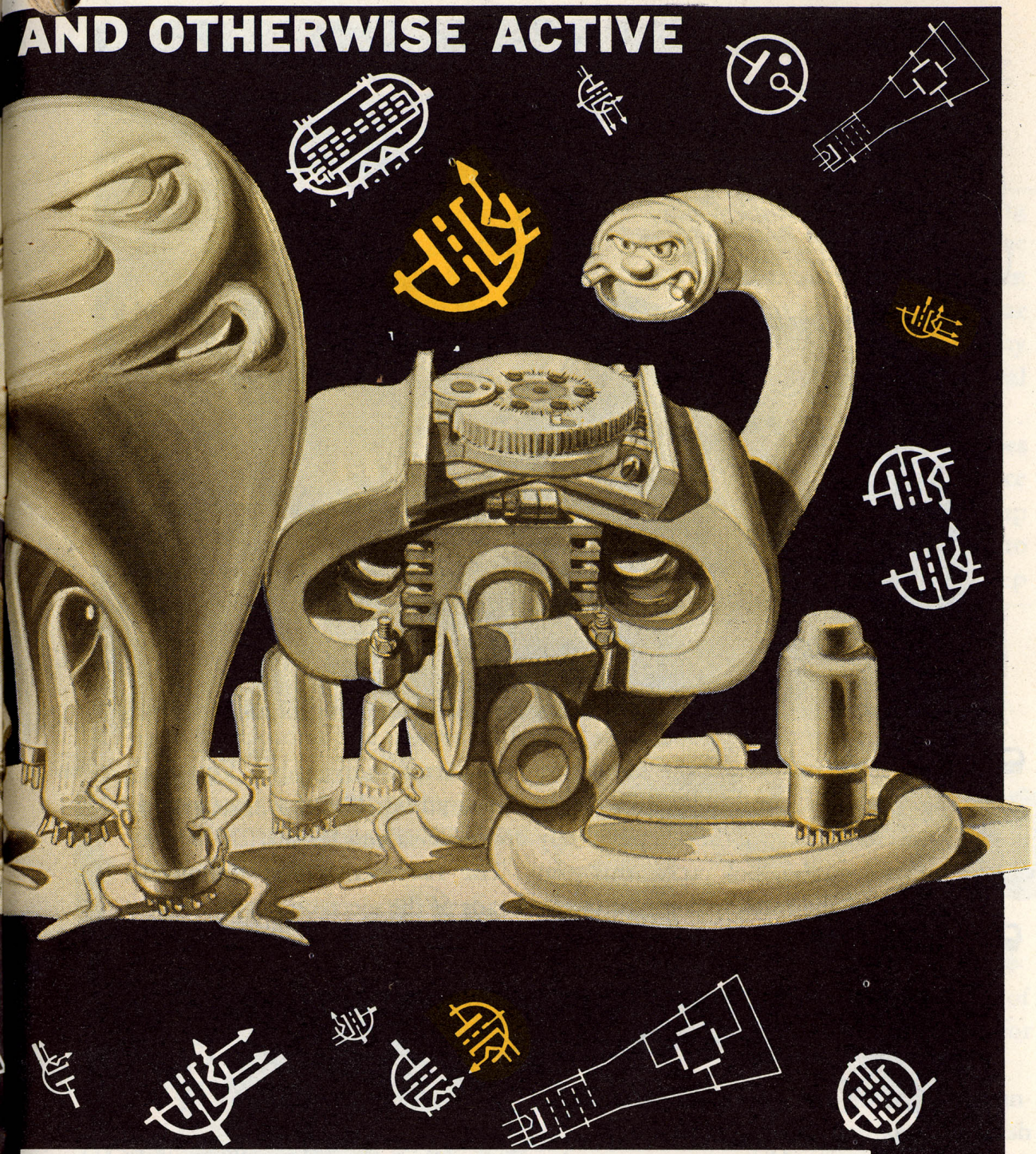
There're a number of things that have to be done real careful-like when you're dealing with radioactive tubes. TB ORD 648 (27 July 56) with Changes 3 (26 May 61) gives you a list of radioactive tubes used in fire control and missile systems. It also gives you the cautions and procedures to use in handling and disposing of these tubes.

TB SIG 225 (6 Apr 62) also gives you a list of radioactive tubes and some dope on identifying them.

P.S. MORE

AND OTHERWISE ACTIVE



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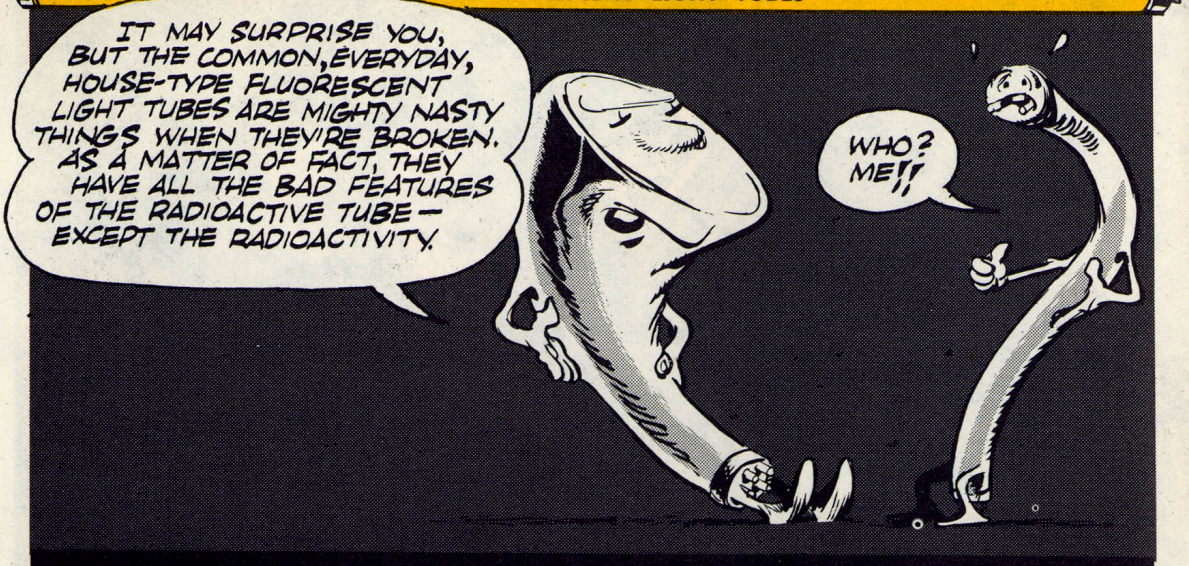
P.S MORE

FLUORESCENT LIGHT TUBES



They contain mercury gas, which is very dangerous if you inhale it or get it into your system.

The fluorescent power (Beryillium) used in some of the older tubes has chemicals which can cause a serious infection if you inhale it, get it into a cut, or swallow it. It'll keep a cut from healing if it gets into it.

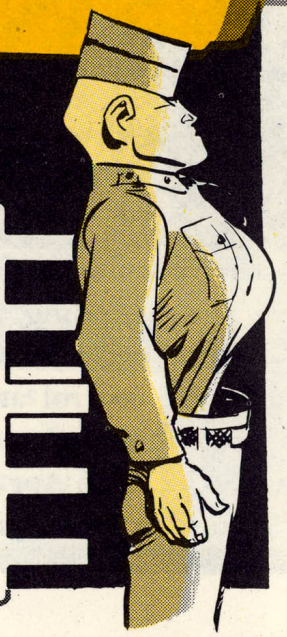
So, it just makes good sense to handle broken and unbroken fluorescent tubes just about the same way you do radioactive tubes. You don't have to bury 'em in a drum of cement or anything like that, but you do want to make sure they're put safely away—once and for all.

You might look at it this way. The radioactive and fluorescent tubes are the rattlesnakes and copperheads of the electron family. When broken, they can not only bite you, they can poison you. So treat 'em with respect . . . and caution.

VACUUM TUBES

The other type of tube that requires some very special handling is the high-vacuum tube. But it's not what's in these tubes that makes 'em dangerous—it's what's not in them.

They contain a whole lot of nothing compressed into a small space. They're under the same sorta strain all the time that you're under when you're suckin' your stomach into your backbone at ATTENTION. But sorta in the reverse.



When their glass envelope fails for some reason . . . SWOOSH! There's an IMplosion — where everything tries to get in to where there's nothing.

This, you must admit, is better'n an EXplosion, where everything's trying to get out to where there's everything and everybody—including you.

But even with an implosion, you can get a faceful of flying glass and stuff, which means you've got to be protected whenever you handle these tubes. Use gloves and wrap a cloth around the tube to help catch the stuff in case of an implosion.

Cathode-ray tubes are vacuum tubes . . . and they sometimes come in the giant, kingsize, economy size. Which means they have more room to hold much more nothing—and there's more of them to fly at you when they collapse.

The rule here is simple:

The weakest point on a CRT is the neck . . . so never pick 'em up or handle 'em by the neck.

The stuff that's used for coating CRT's is generally harmless, but some persons may be sensitive to it. So when you're cleaning up a broken CRT, wear gloves and be careful not to get any cuts or scratches. And wash up real good after you finish the job.

Getting rid of broken vacuum tubes —including CRT's—is no sweat since once they're broken and gathered up there's no real danger. You want to wrap up the pieces in something to keep

anybody from getting cut and get rid of 'em according to your local SOP for glass, etc.

But to pull the stinger from an unbroken vacuum tube, you want to crush it before you dispose of it.

One way to smash 'em is to put 'em in a wooden box with a lid designed to crush the tubes when it's slammed shut. You can also seal 'em in corrugated containers and then drop a heavy weight on 'em while you're standing behind a protective screen.

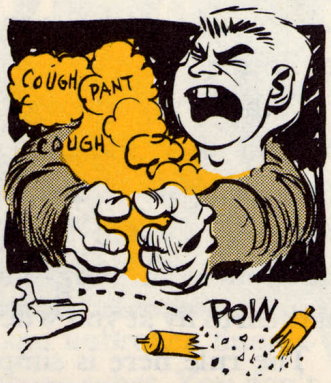
PS MORE

Uh . . . How's That Again?

In a nutshell, it sums up like this:

1. Radioactive tubes (See TB ORD 648 and TB SIG 225) are dangerous here, now and forever and have to be disposed of in such a way that nobody or anything will ever come into contact with them again. Their radioactivity doesn't amount to much as far as radiation is concerned, but you must not let any of it get into your system through a cut, or on your hands or food, or by breathing it. Radioactive tubes are umpteen times more dangerous when they're broken so you NEVER intentionally break one.

2. Fluorescent tubes are dangerous because they contain an irritating gas and some chemicals that can cause damage if you breathe it, swallow it, or get it into a cut or open sore. Since the gas and chemicals contaminate the glass, you need to wear gloves when you're cleaning up broken tubes. And for the same reason, you want to make sure nobody can accidentally get cut by the stuff after you dispose of it. Never break one of these tubes intentionally.



3. High-vacuum type tubes—like CRT's—are dangerous because they can implode and cut you up with flying glass. Whereas the radioactive and fluorescent tubes are dangerous only when they're broken, the high-vacuum tube is dangerous only while it's not broken. Once it has collapsed, it has sorta shot . . . or swallowed . . . its wad. You pull the teeth on these tubes by crushing them before you dispose of them.

Because of the way CR tubes are made they give you ånother hazard. When broken, the neck assembly can travel forward thru the screen and penetrate plenty thick wood (or meat, including you). So never stand in front of this "gun" when you're handling CRT's.

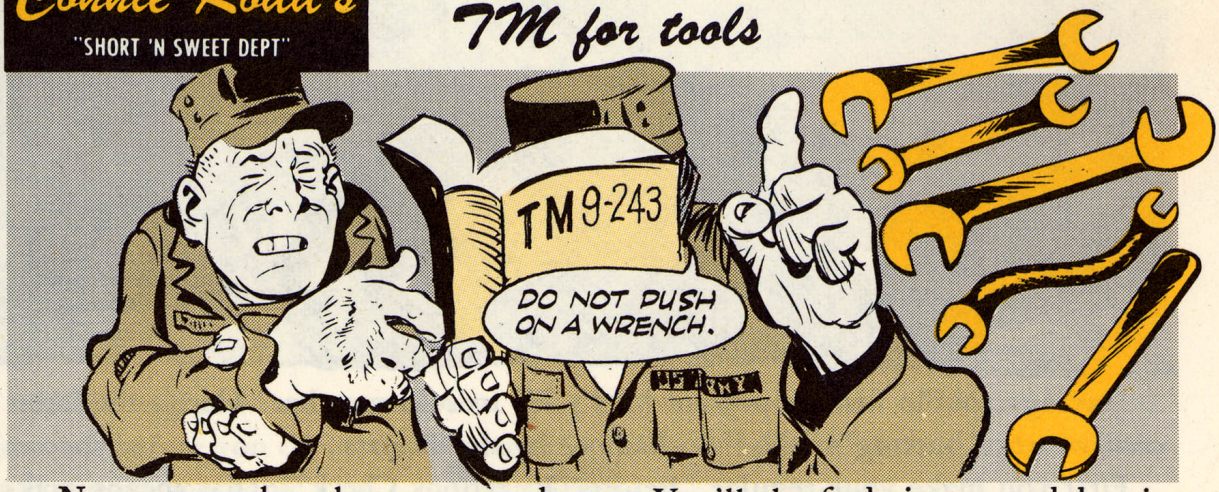
The exact manner in which you dispose of any of these tubes depends upon your local SOP. Some SOP's are going to be on the extra-safe side . . . others may not be so specific.

Some people figure it's easier all around to treat every broken tube as if it were radioactive. This sure simplifies things all right, but there's just one little thing:

When you start handling some rather harmless tubes as if they were dangerous, how long will it be before you start handling dangerous tubes as if they were harmless?

Connie Rodd's
"SHORT 'N SWEET DEPT"

TM for tools



No matter what they are or what they're used for, your tools will do a better job if you take care of them.

You now can have a ready reference on the "Use and Care of Handtools and Measuring Tools" if you get hold of TM 9-243 (Sept 60).

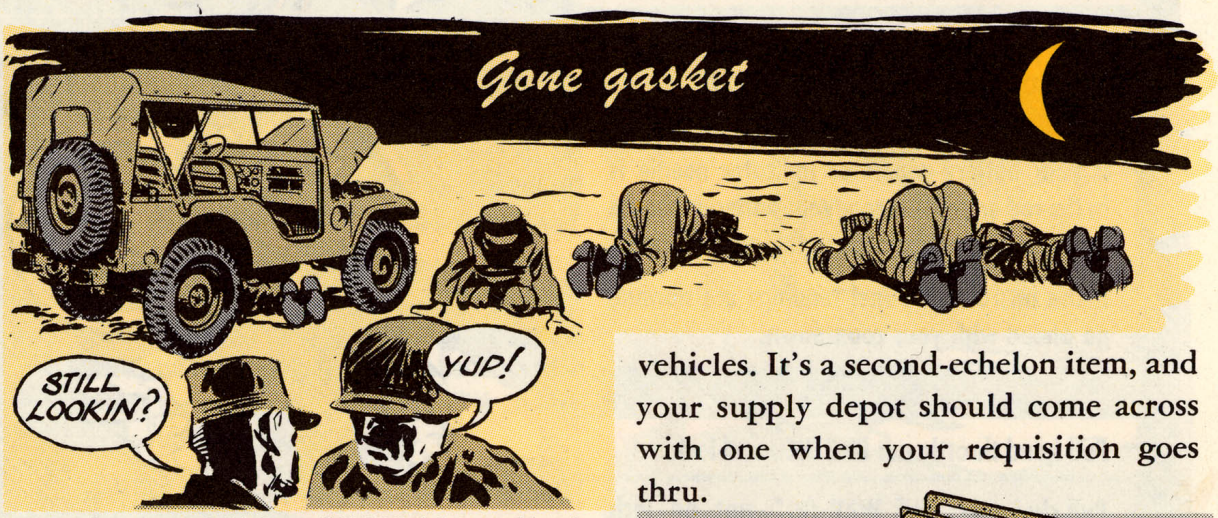
It covers info on measuring tools such as calipers, squares, rulers, scales, etc.

You'll also find pictures and descriptions of such tools as hammers, mallets, screwdrivers, wrenches, chisels, files, knives, etc.

The TM tells you how to use 'em too.

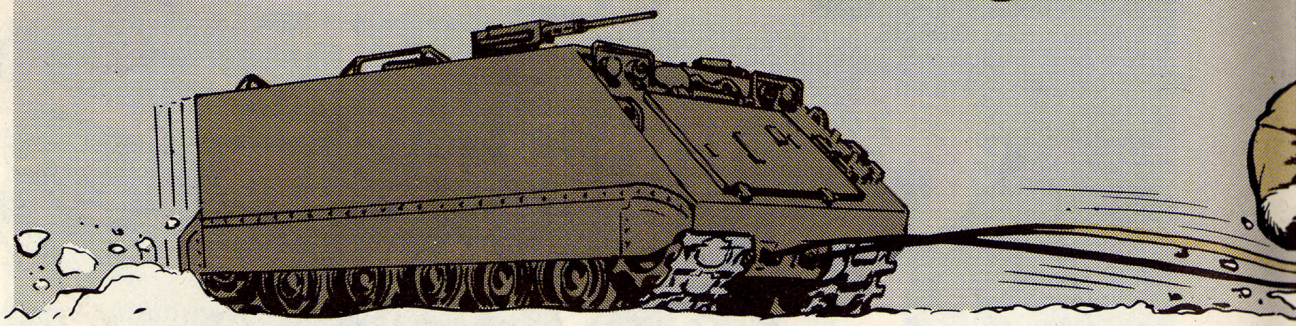
And if you're not on the initial distribution list, get an OK from your CO and use AR 310-1 (Mar 62), para 70 as your authority to requistion it.

Gone gasket



Are you M38 and M38A1 mechanics still hunting high and low for that Gasket, ventilator to valve spring cover, that's in the lower right corner of Fig 15 in TM 9-2320-208-20P (Feb 59)? It wears FSN 2805-360-7927, but it's listed only by Mfr. No. WO-630299 in most pubs for G740 and G758-series vehicles. It's a second-echelon item, and your supply depot should come across with one when your requisition goes thru.

M113 PC cold



Having trouble firing up your M113 PC in cold weather? Here's the latest cold weather starting method worked out by the experts . . .

First you make your regular "Before Operations Check". That means making sure there is coolant in the radiator and lube in the engine, cooling fan, differential, transmission and transfer.

Before you put the power compartment left cover back, push IN on the disconnect lever to disengage your engine from the power train.

Now you start the regular "countdown"... fuel shut-off valve ON, brakes applied and locked, shift lever in N (neutral), lights and radio main switch OFF, master switch ON.

Make your check for hydrostatic lock with ignition OFF, then flip the ignition ON.

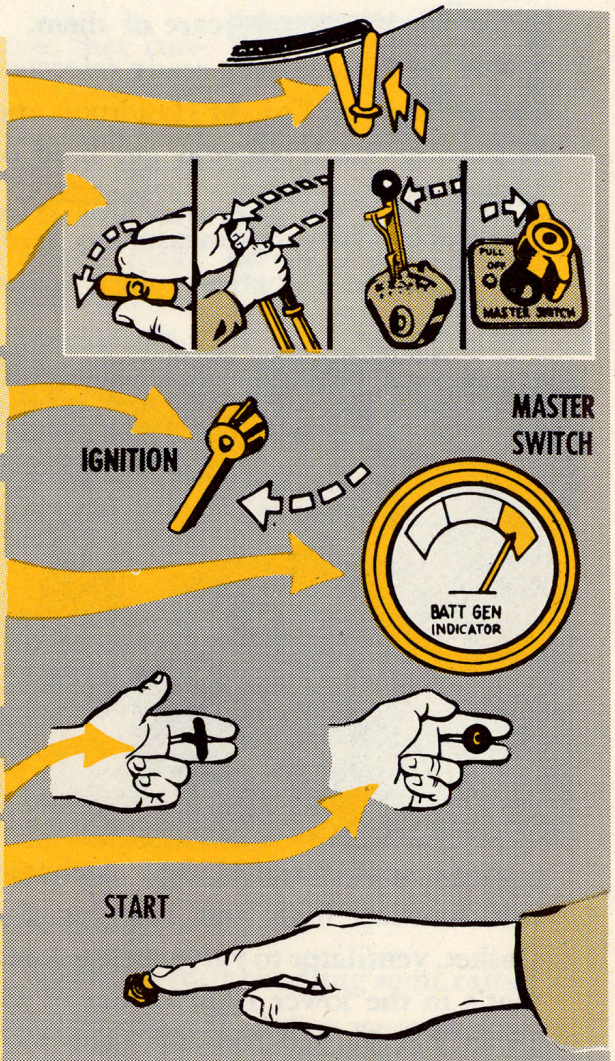
If your battery-generator indicator needle is in the red or yellow area, your batteries should be recharged or replaced before you continue.

If the instrument panel readings are normal, go ahead with your countdown.

Pull hand throttle out ONE INCH and lock.

Pull choke ALL THE WAY OUT—not an inch but all the way.

(So far this has been like the starting method for normal operation outlined in TM 9-2300-224-10 (Nov 61) but here's where it starts to get different.)



KEEP YOUR FOOT OFF THE ACCELERATOR PEDAL. Press the starter button **BUT DON'T HOLD IT DOWN OVER 15 SECONDS.**

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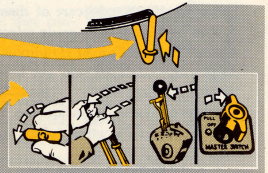

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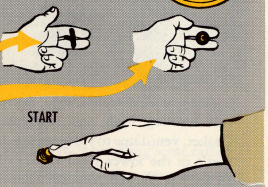


KEEP YOUR FOOT OFF THE ACCELERATOR PEDAL. Press the starter button **BUT DON'T HOLD IT DOWN OVER 15 SECONDS.**

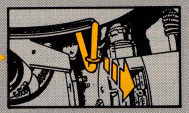
If the engine won't start in that time let your starter cool off for at least 30 seconds before you try again. If you can't make it in five 15-second tries, call for a company mechanic.

After you get the engine started, slowly begin to push in the choke (about half-way). If the engine acts like it is going to die on you, pull out the choke again until the engine RPM picks up. **NEVER PUMP THE ACCELERATOR.**

Keep playing around like this until you get the choke pushed in about half-way and the engine RPM steady.

Now set your hand throttle so the engine runs at 1200-1500 RPM and let her run that way for 3 to 5 minutes or until the temperature gage gets close to the 160° mark. As the engine warms up, push the choke in, little-by-little, until it's all the way in.

Now—stop the engine. Take off your access cover and pull the disconnect handle OUT so the engine will be connected to the power train. (If you have trouble connecting it, jog the start switch with the ignition OFF.) Replace cover.



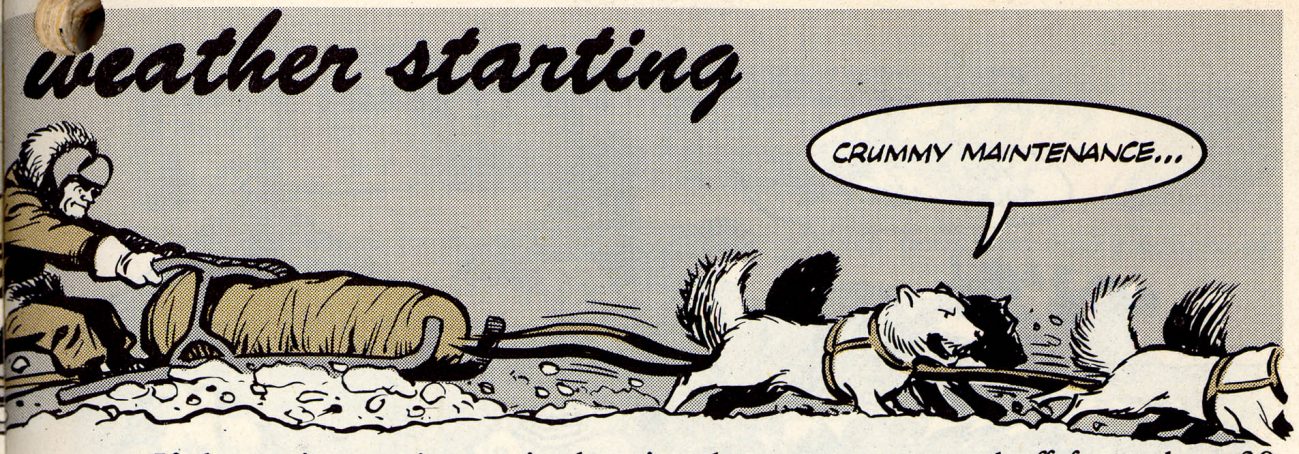
Start your engine again. Set your hand throttle to run the engine at 1200-1500 RPM and let 'er run for five minutes.

Then let the engine drop back to idle at 650-700 RPM.

Check again to be sure your brakes are still set and locked and then move your shift lever to the 3-6 range.

Be sure you run the engine at 1,000 RPM for 3 to 5 minutes to warm up the transmission before you move out.

weather starting



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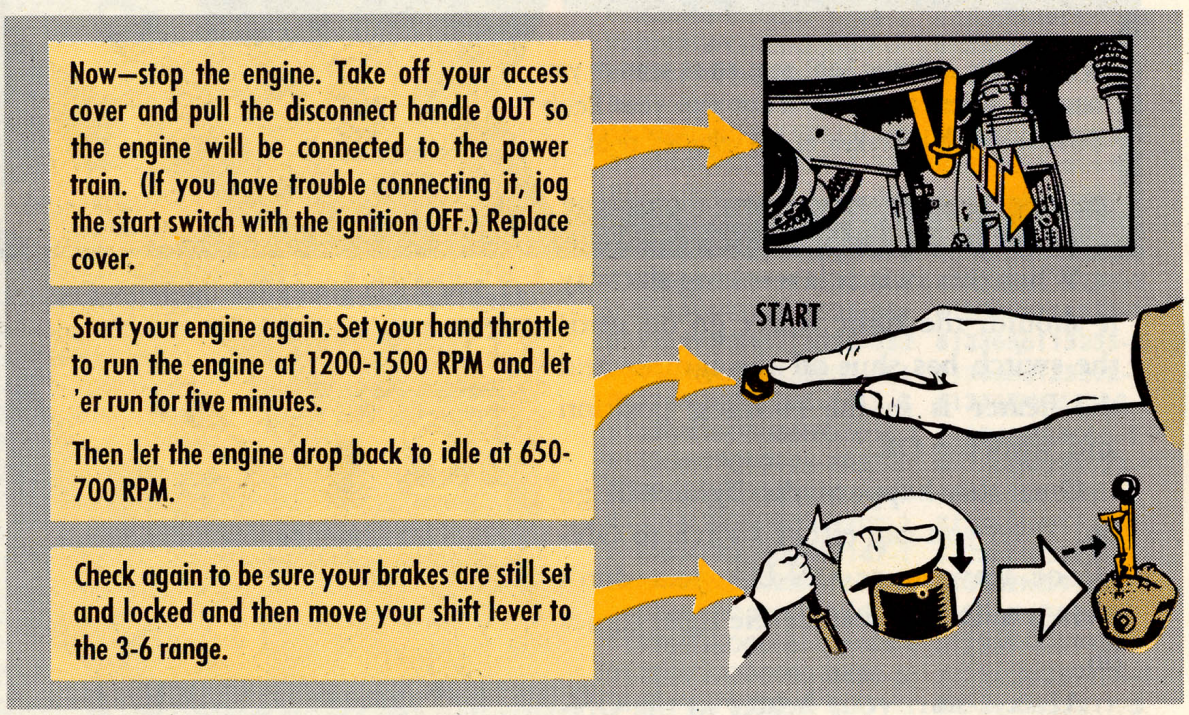

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Hot news on M113 PC heater

Here's the latest dope on the personnel heater in your M113 PC. Some of the word you got before was wrong about the way the heater indicator light works.

It is **not** supposed to light up as soon as you turn the three-way switch to ON-LO. It shouldn't light up until the flame detector switch flips from the starting to the running position and the heater is working OK in ON-LO.

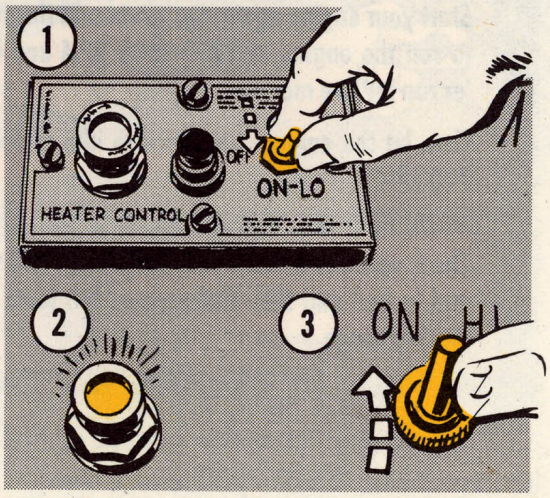
If the heater indicator light goes on as soon as you turn the switch to ON-LO, it's a sign your flame detector switch is broken or not adjusted right.

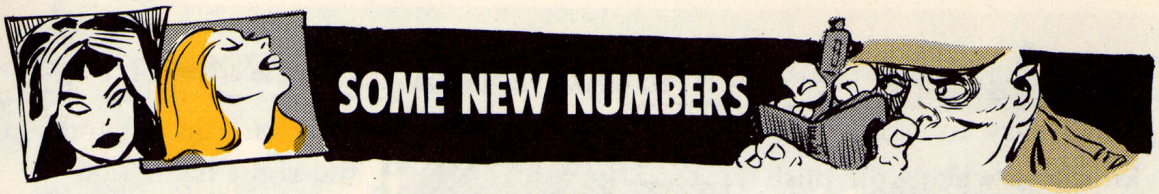
When this switch is working the way it should, the light won't go on until the switch has shut off the ignitor and the heater is in the running position and working OK.

Once this happens the light will go on. Then you can either switch to ON-HI or leave it at ON-LO. Just don't switch to ON-HI before the light comes on.

Always start your heater in the ON-LO position. That'll keep it from backfiring or burning unevenly.

IT SHOULD HAPPEN IN THIS ORDER:





SOME NEW NUMBERS

Every guy likes to thumb through his little black book and add a couple of numbers from time to time.

Sorta breaks up the routine.

Comes time now to change the stock numbers of your Engineer MWO kits.

In order to handle the supply of these kits through the electronic data processing equipment and to get in line with the MILSTRIP stock numbering procedure, the Engineers have set up new stock numbers for all their MWO kits.

Here're the numbers to use to be sure you get the right kit when you need it.

OLD STOCK NUMBER	NEW STOCK NUMBER	OLD STOCK NUMBER	NEW STOCK NUMBER
81336MWO0000333ENG14	81336333ENG14	81336MWO54310211-351	8133654310211-1
81336MWO0000000ENG15	813360000ENG15	81336MWO54310214-351	8133654310214-1
81336MWO000000ENG15A	81336000ENG15A	81336MWO54610202-351	8133654610202-1
81336MWO00000ENG17-A	81336000ENG17A	81336MWO54940203-351	8133654940203-1
81336MWO00000ENG17-B	81336000ENG17B	81336MWO000ENG5031-1	81336ENG5031-1
81336MWO00000ENG17-C	81336000ENG17C	81336MWO00005-5072-3	81336ENG55072-3
81336MWO00000ENG17-D	81336000ENG17D	81336MWO000ENG5072-6	81336ENG5072-6
81336MWO0000000ENG18	813360000ENG18	81336MWO000ENG5166-1	81336ENG5166-1
81336MWO00005-271-1A	81336ENG5271-1A	81336MWO000ENG5166-2	81336ENG5166-2
81336MWO00005-271-1B	81336ENG5271-1B	81336MWO00005-5329-1	81336ENG55329-1
81336MWO0000674KA142	81336674KA142	81336MWO333-5-5394-2	8133633355394-2
81336MWO0000ENG687-1	81336ENG0687-1	81336MWO00005-5398-3	81336ENG55398-3
81336MWO000ENG1031-1	81336ENG1031-1	81336MWO333-5-6007-1	8133633356007-1
81336MWO000ENG1043-1	81336ENG1043-1	81336MWO6100-200-341	8133656100200-1
81336MWO00005-1054-1	81336ENG51054-1	81336MWO56115213-351	8133656115213-1
81336MWO333-5-1213-2	8133633351213-2	81336MWO56115213-352	8133656115213-2
81336MWO333-5-9465-4	81336ENG59465-4	81336MWO56115215-351	8133656115215-1
81336MWO51900200-351	8133651900200-1	81336MWO56115226-351	8133656115226-1
81336MWO000ENG1-9501	81336ENG19501-1	81336MWO56115227-351	8133656115227-1
81336MWO000ENG1999-4	81336ENG1999-4	81336MWO56115230-352	8133656115230-2
81336MWO000ENG1999-7	81336ENG1999-7	81336MWO56115230-353	8133656115230-3
81336MWO52410200-351	8133652410200-1	81336MWO56115235-351	8133656115235-1
81336MWO52410200-352	8133652410200-2	81336MWO56115235-352	8133656115235-2
81336MWO52410203-352	8133652410203-2	81336MWO56125202-351	8133656125202-1
81336MWO52410204-351	8133652410204-1	81336MWO00005-7113-2	81336ENG57113-2
81336MWO052410205-351	8133652410205-1	81336MWO000ENG8006-1	81336ENG8006-1
81336MWO000ENG3300-3	813365ENG3300-3	81336MWO00005-8022-1	81336ENG58022-1
81336MWO000ENG3300-4	813365ENG3300-4	81336MWO58120201-351	8133658120201-1
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81336MWO53805207-351	8133653805207-1	81336MWO000ENG9488-1	81336ENG9488-1
81336MWO53805219-351	8133653805219-1	81336MWO000ENG9488-4	81336ENG59488-4
81336MWO53810207351B	81336538102071B	81336MWO00005-9488-5	81336ENG59488-5
81336MWO53810207351C	81336538102071C	81336MWO333-5-9517-5	8133633359517-5
81336MWO54120205-351	8133654120205-1	81336MWO333-5-9519-1	8133633359519-1
81336MWO54210202-351	8133654210202-1	81336MWO333-5-9859-1	8133633359859-1
81336MWO54210202-352	8133654210202-2	81336MWO00005-9950-1	81336ENG59950-1
81336MWO54310207-351	8133654310207-1		

AD 725-60
TITLE OF SUPPLIES AND EQUIPMENT
REQUISITIONING RECEIVING AND ISSUE SYSTEM
HEADQUARTERS DEPARTMENT OF THE ARMY
FEBRUARY 1960

KNUCKLE-SAVER

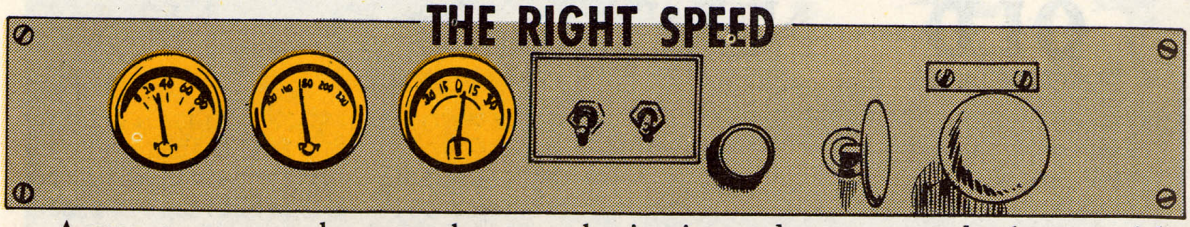
It's easy to bang your knuckles when you push the power boom lever forward in your Quickway M200 truck-mounted crane-shovel. There's just not enough room for a guy to wrap his fist around the lever, push it forward, and

clear the door handle on the right hand side.

To get rid of this knuckle-busting trap, heat and bend the handle of the lever, like so.

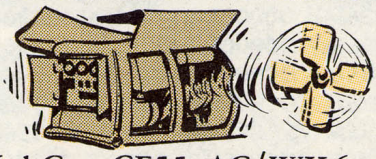
This'll give you the room you need to shove it back and forth without losing any skin.

THE RIGHT SPEED



A smart operator knows when to take it nice and easy . . . and when to pick up or slow down the cadence.

When you skip a warmup period and go too fast too soon—the results are not always what you expect.



Sometimes, you're in for a letdown.

And, one thing could lead to another.

Like when you're starting up your 5 KW Hol-Gar CE55 AC/WK6 generator. It gets the shakes when you warm up your engine at the wrong speeds.

This could lead to generator fan or engine failure.

But there's no sweat to stopping this excessive vibration and the equipment failures that are likely to go along with it.

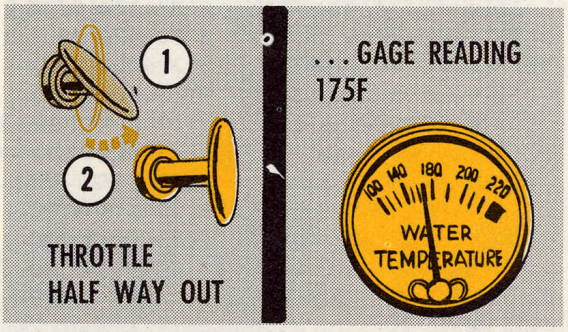
BY THE NUMBERS

When you start the engine, pull the throttle handle halfway out. Then, when the engine starts, adjust the throttle so you get a high idle speed with the least amount of vibration.

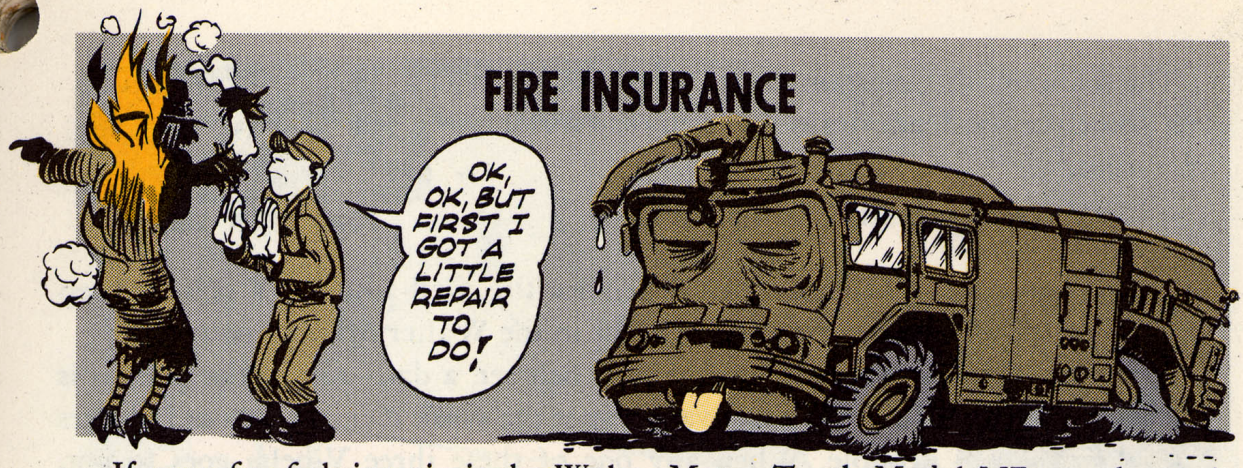
Keep the engine running at this speed until the temperature gage reads 170-180°F.

Now, push the throttle handle in and apply the load.

Adjust the speed for correct voltage and frequency operation.



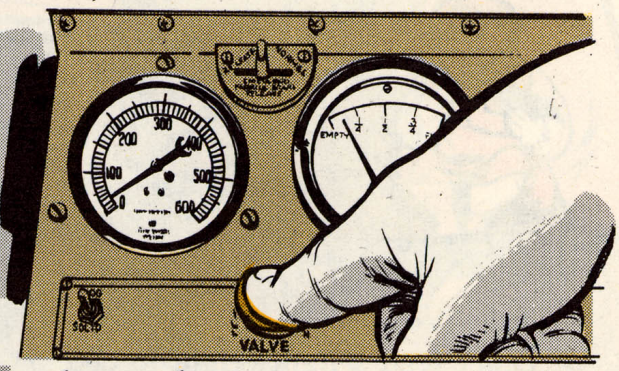
OK, now when you're ready to shut down, release the load and pull the throttle handle out. Let it idle for a couple or three minutes, then shut it off.



If your fire-fighting rig is the Walter Motor Truck Model MF, you know it takes more than a quick walk-around to keep a rig that big shaped up for 100 percent performance.

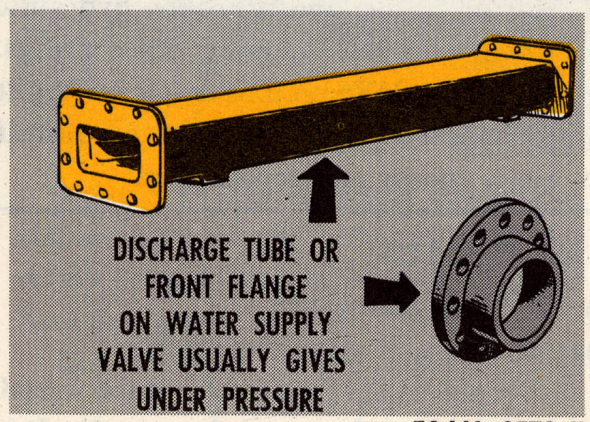
Here are some samples of the special care it takes to be sure the Walter MF is fit as Nero's fiddle.

HOLD THAT TURRET VALVE!



Before you shut off the turret stream, you want to reduce pump pressure by slowing the engine or disengaging the pump clutch. Pressure needs to be down around 25 PSI before you push the turret control valve to stop the stream.

This is a high-pressure, high-output pumper with an air-actuated control valve on the turret stream—so it takes special handling.



Otherwise the air-actuated valve slams like a clam, throws 200 PSI on the relief valve, and dumps an overload on the supply line. What gives is usually the water pump discharge tube, or the front flange on the water supply valve. Nuff said?

FOAM GETS IN YOUR HAIR

Like TM 5-4210-202-10 says, you want to flush out dried foam before it gums up the lines and fouls the foam pump.

When foam is exposed to air, it becomes highly corrosive and forms hard granular deposits. You want to flush leftover foam out of the system pronto, before it eats into critical parts and leaves deposits that can cripple the operation.

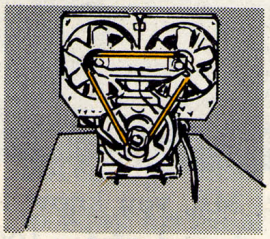
Backflushing is one operation you want to perform by the book, because each valve has to be set right to flush out all the leftover foam.

PS MORE

The foam pump, f'rinstance, won't come clean unless you close the foam drain valve for the flushing operation.

FOAM DRAIN VALVE

BELTS IN THE BACK



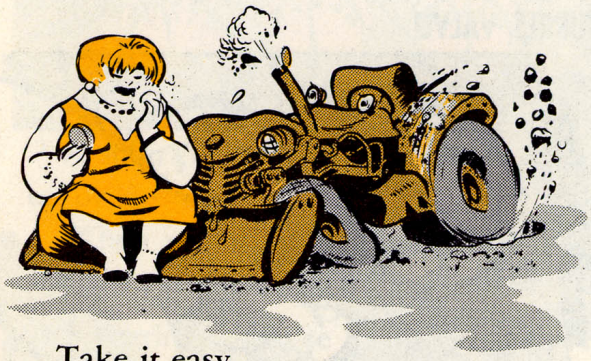
CHECK BELT TENSION DAILY

It takes half a dozen healthy, well-adjusted V-belts to keep things circulating right in the Walter MF engine section.

Specially on the rear belt set, a daily test of the tension is your one sure way to spot the weak member before it makes trouble. When any one of these three V-belts goes to pot, you replace the whole pulley-pluckin' trio.

DON'T PUSH IT HARD

Whoa there. Hold it.



Take it easy.

Don't send a lightweight to take on a heavyweight job.

Sure you've rigged a **dozer blade** on your MRS Model 150 tractor, but, that's no reason to try to make it do the work of a Cat D8 or a IHC TD-24—it's not built for **heavy** dozing work.

The MRS tractor can handle your scrapers and other towed equipment and light dozing work. But, when you overmatch it with a job that's out of its class, the light construction of the dozer assembly leaves you wide open for buckled brackets, a broken radiator and tractor frame, and a broken hydraulic pump and lines, among other things.

Use the MRS on jobs that it was built to handle . . . and you'll save yourself time, energy and repair bills.

Please Note In PS 115...

Here are three easy notes for your copy of PS Magazine 115 . . .

On page 2 cross out "except some marine, rail and all nuclear items."

Engineer equipment (which takes a log book) is not excused from the initial MWO report called for by the new equipment record system. See par 8b, DA Cir 700-15 (18 Apr 62) "Instructions for Implementation of the New Equipment Record System."

So on page 13 of PS 115, just cross out "Engineer equipment" where the one-time MWO is discussed in the right-hand column.

On page 15, under "Hang-Overs" you can delete DA Form 1545. The old "change card" is one less form you have to fool with. It's not called for in the new supply regulation, AR 735-35 (16 Mar 62).

LET'S COMMUNICATE

SO WHAT'S IN A NAME?...

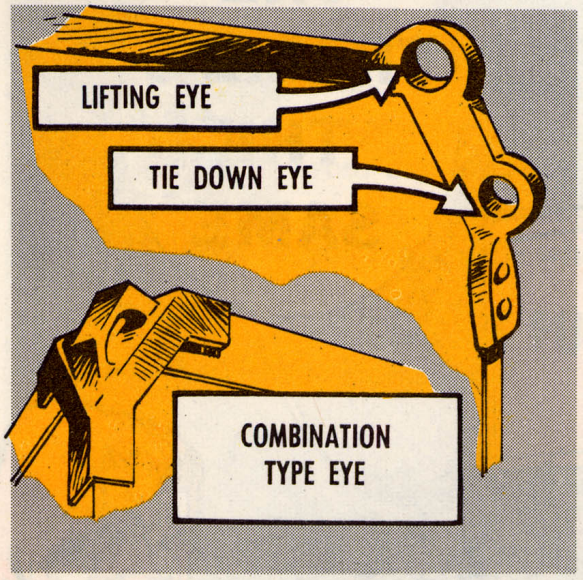
Your S-141/G electrical equipment shelter may be the only thing in the Army with more names than chipped beef and gravy.

But whether you're calling it an S-175/MTC-3 or an S-190/MGC-9, or anything in between, it's still a lightweight, aluminum, stressed skin, foam-core hut that needs a little care and caution to do its job.

You can do yourself and the shelter a big favor right now by updating the tie-down procedures spelled out in the TM's for the equipment your shelter is used with. TB SIG 354 (13 Apr 62) with Change 1 (6 Jul 62) gives you later procedures which supersede those in the TM's. It also gives you a lot of other dope you need to know about the maintenance of the S-141's and S-144's.

P.S. MORE

When it comes to lifting, the eyes may or may not have it. Some shelters have both lifting and tie-down eyes—others have only a combination eye.



If your shelter has both, you want to make dead certain you use the lifting eyes for lifting. They're the ones on top.

Those lifting eyes will take just about as much stress and strain as it takes to lift and lower the shelter—and not much more.

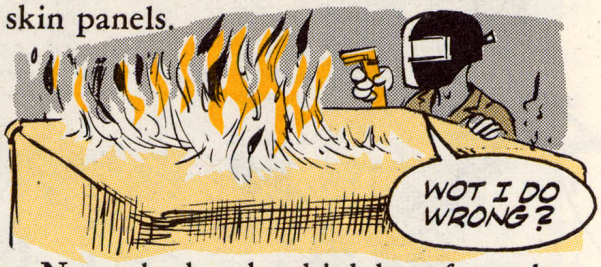
This means any yanking, jerking, swinging or swaying will tear the lifting assemblies right off the shelter.

The shelter gets a lot of its strength from the foam material sandwiched between the layers of the skin. This foam-core must stay closely bonded to the skin panels to do its job. Any bouncing or jarring of the shelter will loosen the bond and leave you with nothing more than a shingle on each side of the supporting core. About as rigid as a wet pizza.

It just stands to reason that you don't butt these shelters around with a fork-lift, truck, tractor, or what-have-you. It'd not only shake loose the foam-core, but it'd dent, puncture, twist and otherwise distort the skin and frame.

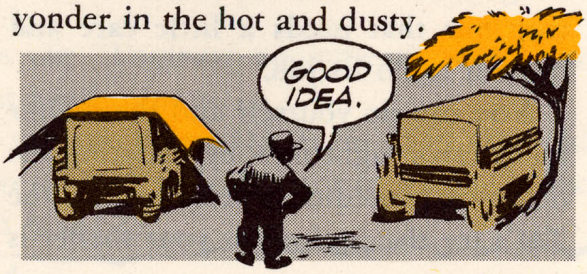
That foam-core is also highly flammable.

Never do any welding or soldering on the shelter itself. The heat can disintegrate this foam right through the skin panels.



Not only that, but high heat from the sun can cause the foam to break down and weaken the shelter. Don't let the temperature of the skin get higher than about 54°C. or about 130°F. You can use Thermometer, self-indicating, bi-metallic MX-1570/G, FSN 6685-663-4811 (Sig) to keep you clued on the surface temperature.

A little shade and a lot of water come in mighty handy if she starts getting too hot. You might want to rig a canvas fly if you're parked way out yonder in the hot and dusty.

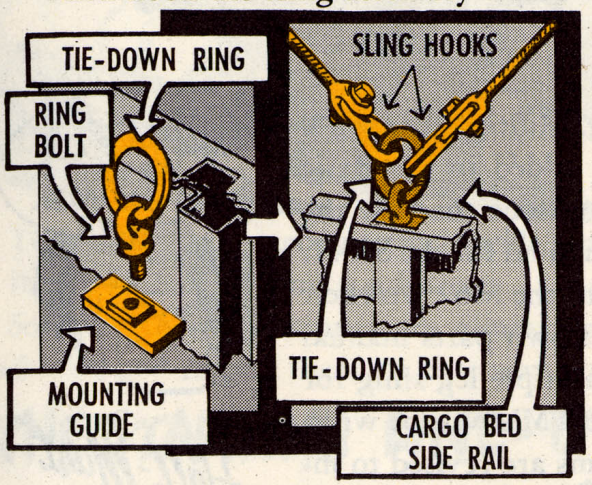


NEW TIE-DOWN PROCEDURE

You've got a new technique for tying down the S-141/G in the bed of the truck. It goes like this:

Attach a tie-down ring assembly from your regular multiple-leg sling onto the center post on each side of the cargo bed side rail.

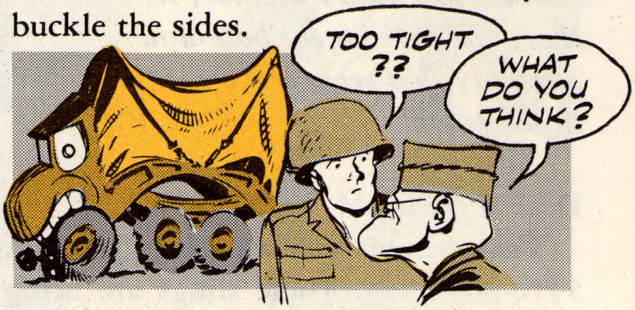
Then hook the sling assembly cables



to the tie-down rings of the tie-down assemblies and the tie-down eyes of the shelter. Make sure the turnbuckle ends of the cables are the ones that connect to the tie-down ring assemblies.

The turnbuckles should be tightened evenly, so you'll need someone to work the other side of the shelter. Turn 'em as far as you can by hand—then give 'em an additional **half-turn** with a bar or rod through the turnbuckle slot. **But no more!**

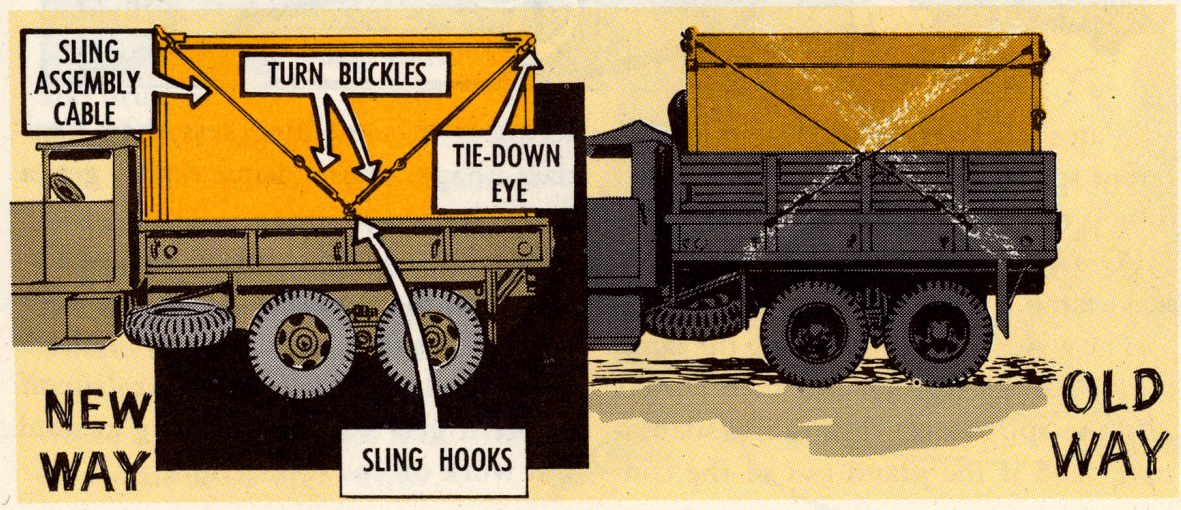
Those turnbuckles are mighty potent and just one turn of the screw too much can overstress the tie-downs, or maybe buckle the sides.



To help snug the shelter in the truck bed, slide two-by-fours between the sides of the shelter and the truck bed—and between the rear of the shelter and the cab.

Your patching kit, FSN 5410-783-6250, will handle small rips and tears on the shelter but you've got to follow the instructions very closely. The most important thing is to keep moisture out of the foam-core to keep it from going bad.

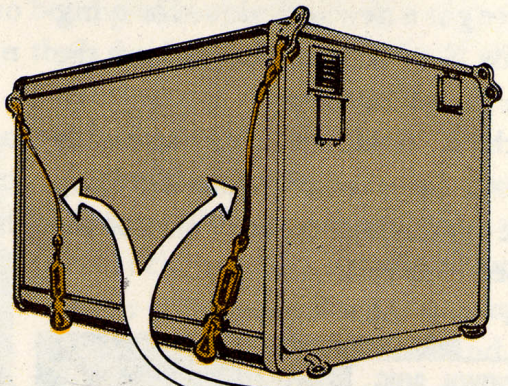
But watch that stuff you use in making the bonding mixture. If you get any on you, wash it off right away. It can cause an inflammation of the skin.



S-141/G SHELTER SLING

Dear Half-Mast,

Your article in PS 112 on the S-141/G shelter was great . . . but I need one little bit of information you didn't include. And that's the FSN for the hold-down assembly that secures the shelter to the truck. *SFC M. V.*



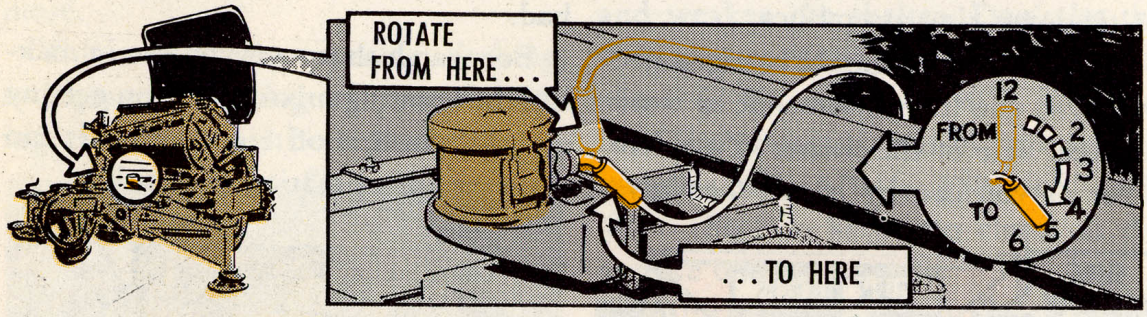
Dear Sergeant M. V.,

The assembly you want is called Sling, Multiple Leg, FSN 5410-805-5533. These slings are being added to the Basic Issue Items List for the various configurations that use the S-141/G since there's no separate parts manual for the S-141. This sling can be used to lift shelters with the M62 wrecker.

The S-144/G shelter, however, has its own parts manual —TM 11-5410-205-12P and 35P. The multiple leg sling for it is listed as FSN 5410-785-3245. These TM's will be withdrawn as soon as TM's covering end items are revised to include parts for the shelter.

Half-Mast

FOR DAMPENED SPIRITS

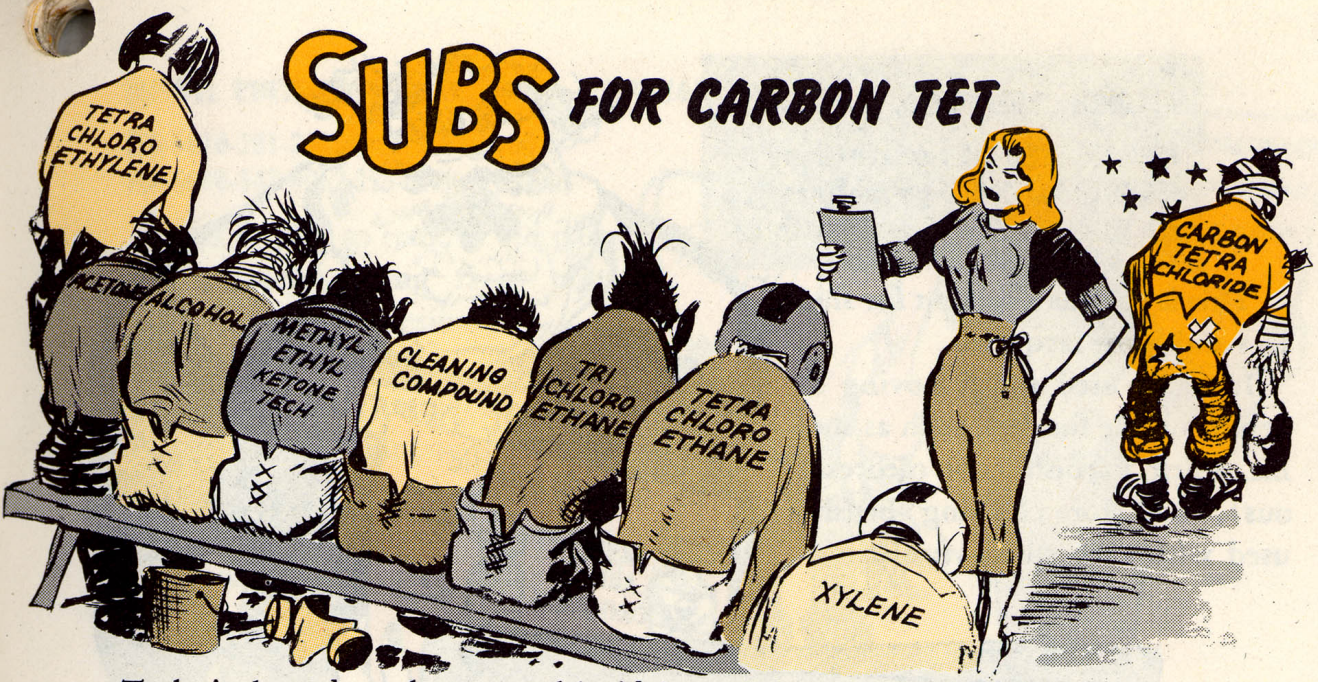


Water does different things to different spirits. It dampens some . . . and dilutes others. On your Radar Set AN/MPQ-4A it just shorts out the spirit level lamp.

The water seeps down along the lamp cable (Cable W724) and then sneaks into the spirit level through condensation. And if the gland nut of the connector is in something less than first-class shape, those drips really get a free ride.

So what you do is rotate the connectors from their present 12 o'clock position so that they point down . . . like 5 or 7 o'clock. This lets the water drip off before it gets a chance to hang around and work on the connection.

SUBS FOR CARBON TET



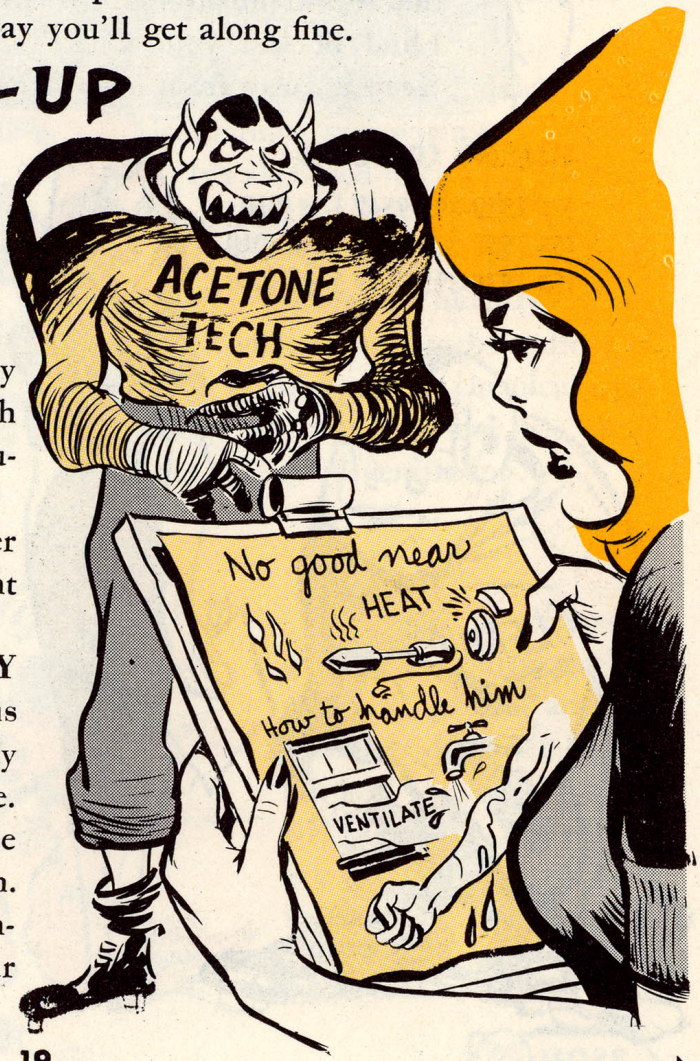
Technical grade carbon tetrachloride's no longer authorized for use. If you're looking for a substitute . . . well, here they are.

Some of these substitutes are almost as potent as the carbon tet. Treat 'em with care and respect them . . . that way you'll get along fine.

THE STARTING LINE-UP

ACETONE, TECHNICAL

FSN 6810-223-2739 1-pt can (Chem)
FSN-6810-184-4795 1-gal can (Chem)
FSN 6810-281-1864 55-gal drum (Chem)



You use it to remove gummy residues from engine parts, such as valves, valve stems, and carburetor parts.

It's used as an emergency cleaner for paint-lacquer spray equipment and brushes.

WARNING ON THIS SNEAKY PLAYER: Acetone is poisonous and very flammable. Keep it away from heat, sparks, and open flame. Keep container closed tight. Use where there's plenty ventilation. Wear an approved respirator in inclosed areas. If you get it on your skin wash it off right away.

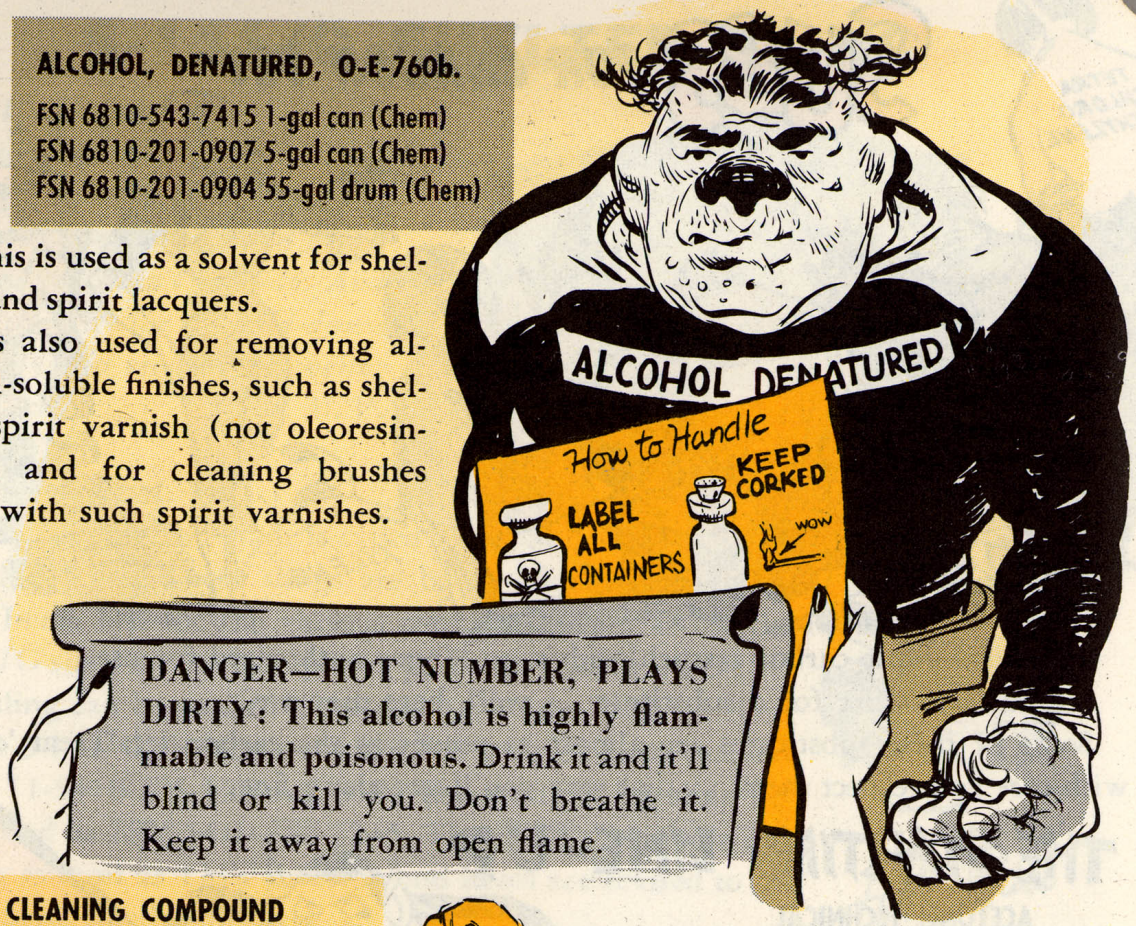
PS MORE

ALCOHOL, DENATURED, O-E-760b.

FSN 6810-543-7415 1-gal can (Chem)
FSN 6810-201-0907 5-gal can (Chem)
FSN 6810-201-0904 55-gal drum (Chem)

This is used as a solvent for shellacs and spirit lacquers.

It's also used for removing alcohol-soluble finishes, such as shellac, spirit varnish (not oleoresinous), and for cleaning brushes used with such spirit varnishes.



DANGER—HOT NUMBER, PLAYS DIRTY: This alcohol is highly flammable and poisonous. Drink it and it'll blind or kill you. Don't breathe it. Keep it away from open flame.

CLEANING COMPOUND

FSN 7930-395-9542 1-pt (QM)
FSN 7930-396-3420 1-gal (QM)
FSN 7930-395-9541 5-gal (QM)

This is used to clean electrical and electronic materiel.

MESSY SLOB, BITES, TOO: This compound may leave a slight oily residue, interfering with operation of contact points. Contact points should be cleaned with nonconductive abrasives and thoroughly dusted.

It is a poisonous, flammable compound. You've got to have plenty power fan ventilation when you use this stuff. If you can't get that, you'll have to wear a chemical cartridge respirator. You ought to wear protective clothing, like rubber gloves, too.

Keep it out of your eyes. Either use a shield or wear chemical goggles.

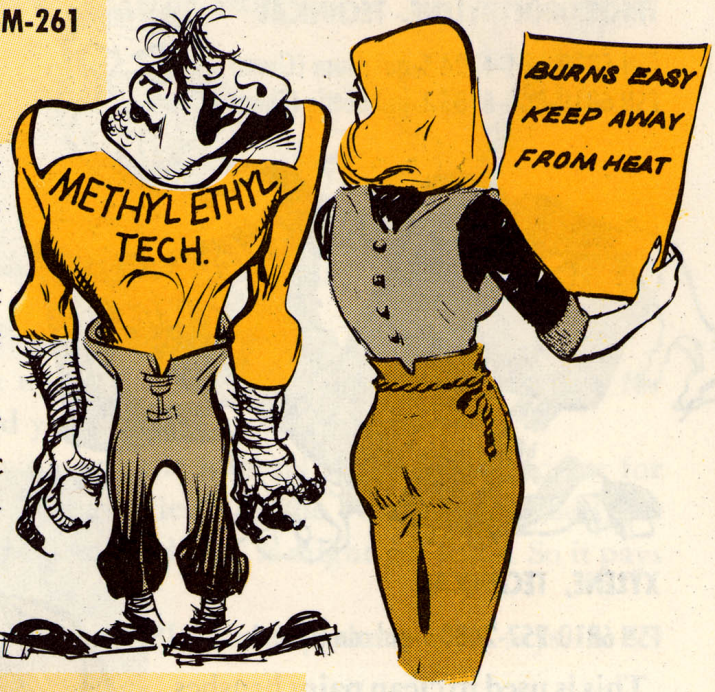
METHYL ETHYL KETONE, TECHNICAL, TT-M-261

FSN 6810-281-2785 1-gal can (Chem)
FSN 6810-543-4062 355-lb drum (Chem)

This is used to remove old paint and primer coating from phosphate-coated magnesium.

It's used to clean equipment that's been used to apply strippable plastic coating compound.

It can also be mixed with toluene and used as a solvent for plastic cold solder and metal filler compound.



1, 1, 1—TRICHLOROETHANE, TECHNICAL, O-T-620

FSN 6810-664-0387 1-gal (Chem) FSN 6810-664-0388 5-gal (Chem)

It's used to clean electrical parts, insulation, and wiring.

It's also used to clean typewriter type face.

THIS ONE BREATHES POISON: Vapors are harmful. Keep it off your skin, breathe as little of it as possible. Use a chemical cartridge respirator where you can't get real good ventilation.

TETRACHLOROETHYLENE, TECHNICAL

FSN 6810-270-9982 55-gal drum (Chem)

It's used in vapor-degreasing equipment to clean oil, grease, and oil-bearing dirt off metal parts.

BE ALERT: Its vapors are toxic. Keep it off your skin. Don't inhale vapors. Use plenty ventilation.

PS MORE

TRICHLOROETHYLENE, TECHNICAL

FSN 6810-184-4794 5-gal drum (Chem)
FSN 6810-804-6185 1-gal bottle (Chem)

This is used in vapor-degreasing equipment to take oil, grease, and oily dirt off metal parts.

It's also used to clean fungus from electrical connectors.

WARNING: Its vapors are toxic. Breathe it as little as possible. Keep it off your skin. Use chemical cartridge respirator if working in a poorly ventilated area. Work outdoors if possible.

XYLENE, TECHNICAL

FSN 6810-257-2480 1-gal can (Chem)

This is used to clean paint brushes which were used with paint thinned by xylene.

PLENTY FLAMMABLE. Keep it away from heat and open flame. Use plenty ventilation. Don't breathe it. Keep it off your skin.

TB SIG 327 (24 Jan 61) and TB 9-268 (23 Jan 61) give you a run-down on the use of substitutes for carbon tet. SM 3-1-6800 (Apr 62) lists chemicals and chemical products. TB CML 50 describes chemicals listed in SM 3-1-6800 and gives information on their use and other pertinent information.

Here are the respirators you can use as protection against fumes of chemicals listed above:

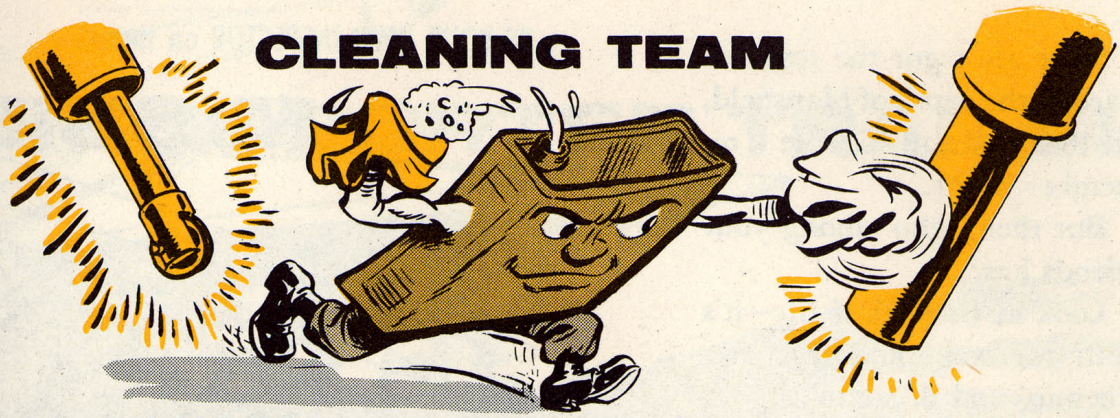
FSN 4240-288-6843 (Chem)—Respirator, Air Filtering (GGG-M-125, type IV). Authorized local procurement.

FSN 4240-276-8935 (Chem)—Respirator, Air Filtering (GGG-M-125 , type II). Central procurement (procurement leadtime 105 days).

*FSN 4240-368-6150 (Chem)—Respirator, Air Filtering, M5-series (MIL-R-11148).

*This respirator can be used but is being replaced by FSN 4240-817-9233 (Chem), Respirator, Air Filtering, M6. (Supplied from Requirement Type Contract through Chemical supply channels.)

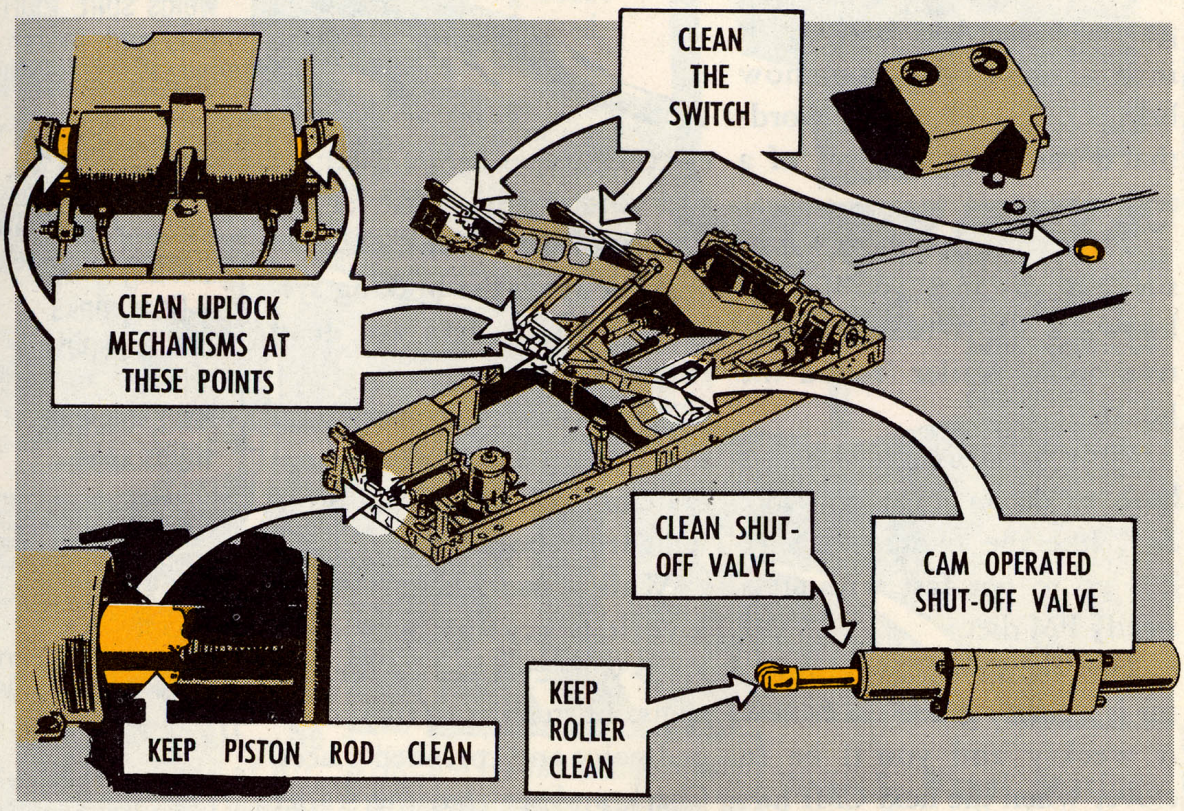
CLEANING TEAM



Elbow grease and some volatile mineral spirits—they make a great team for getting some things cleaned around your Nike-Hercules launcher.

F'rinstance . . . a rag dampened with volatile mineral spirits is a good bet for keeping the safety switch in the T-track clean. If the switch gets cruddy, it might not go down. And if it happens to go down, it might get stuck. So it pays to open the "can" of elbow grease.

After you clean the switch, hit it with PL monthly the way it says in LO 9-1440-250-20A.

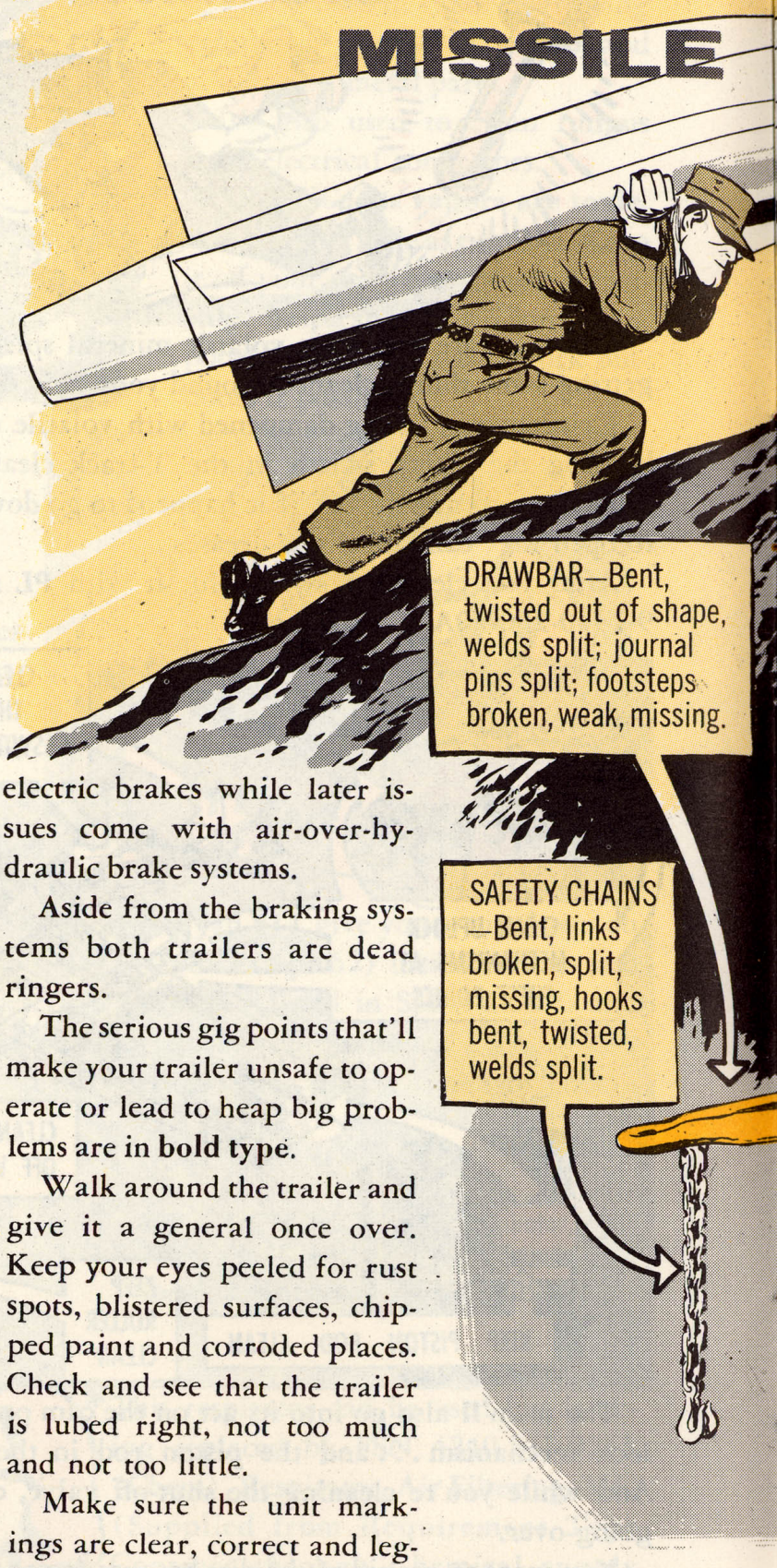


The team'll also go into its act on the cam operated shut-off valve . . . the uplock mechanism . . . and the piston rod in the downlatch hydraulic cylinder. And while you're cleaning the shut-off valve, don't forget to give the roller a going-over.

You want to get rid of the dirt because it can lead to a broken shut-off valve and an uplock circuit that won't close. And no closed circuit, no motor shutoff.

BE YOUR OWN INSPECTOR on the . . .

MISSILE



So it ain't got the torso of Bardot, the depth of Mansfield, or the gams of Grable (remember her?).

But then, who among your friends has?

Look at its way of life—it's built for wear and tear, not schemin' and dreamin'.

It's always out in the open . . . banged away at by snow, sleet and freezing temperatures, smothered by rain, dust and heat waves.

It's got tires that can go flat, paint that can get chipped and an electrical system that can go haywire. And backing it into a tight spot somehow brings out a choice of words that'd raise the hair off of a seal.

But if you gotta move a missile any distance you'll soon know it's nice to have a missile transporter trailer 'round the house.

Your trailer is a workhorse, built to do an important job. But, like the glamor queens, it'll go to pot fast without a steady PM diet.

This Be Your Own Inspector is a handy guide . . . follow it weekly and you'll be in clover when the next CMI hits your site.

Two models of the transporter trailer are in service, the M261 and M261A1. Early types are equipped with 6-volt electric brakes while later issues come with air-over-hydraulic brake systems.

Aside from the braking systems both trailers are dead ringers.

The serious gig points that'll make your trailer unsafe to operate or lead to heap big problems are in **bold type**.

Walk around the trailer and give it a general once over. Keep your eyes peeled for rust spots, blistered surfaces, chipped paint and corroded places. Check and see that the trailer is lubed right, not too much and not too little.

Make sure the unit markings are clear, correct and legible.

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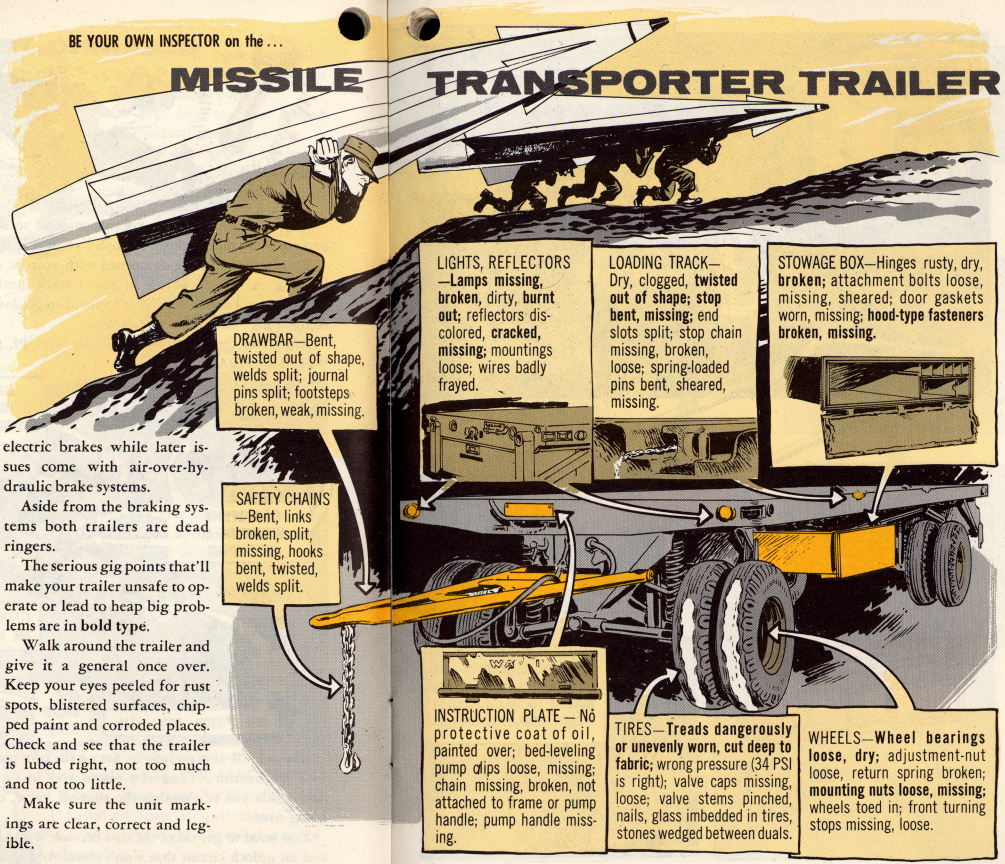
BE YOUR OWN INSPECTOR on the . . .

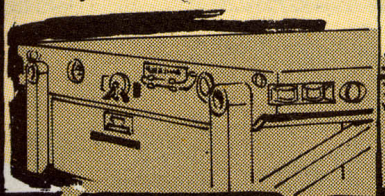
MISSILE TRANSPORTER TRAILER



MORE

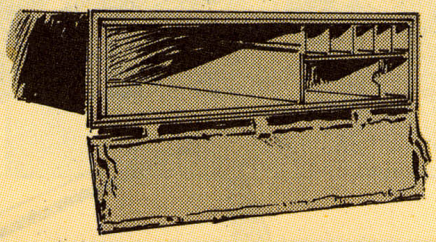
TRANSPORTER TRAILER

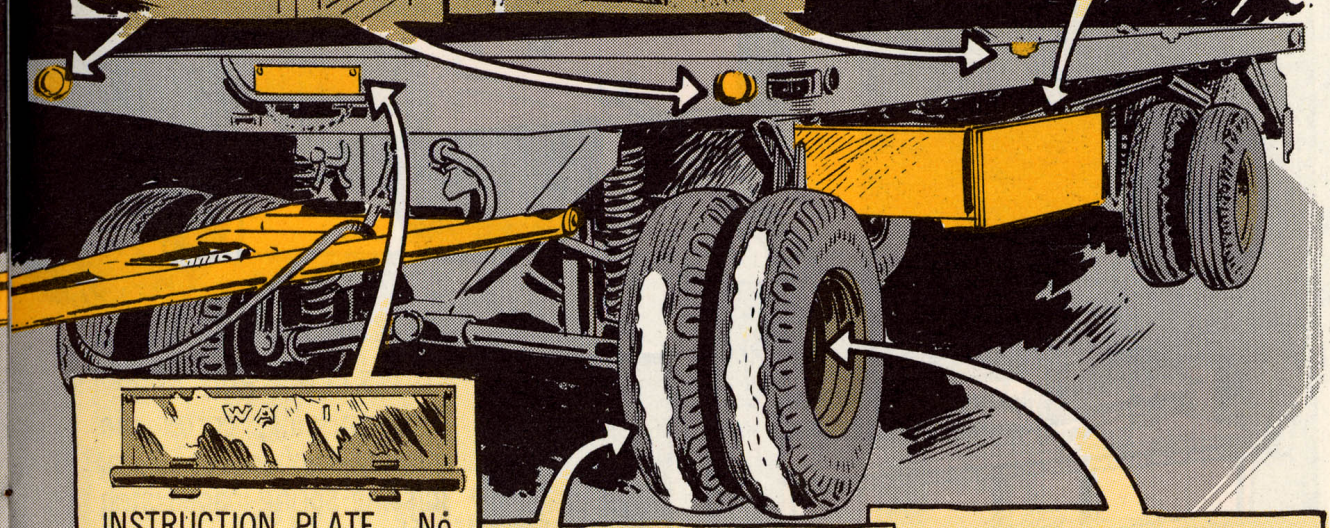
LIGHTS, REFLECTORS —**Lamps missing, broken,** dirty, **burnt out;** reflectors discolored, **cracked, missing;** mountings loose; wires badly frayed.



LOADING TRACK—Dry, clogged, **twisted out of shape; stop bent, missing;** end slots split; stop chain missing, broken, loose; spring-loaded pins bent, sheared, missing.

STOWAGE BOX—Hinges rusty, dry, **broken;** attachment bolts loose, missing, sheared; door gaskets worn, missing; **hood-type fasteners broken, missing.**



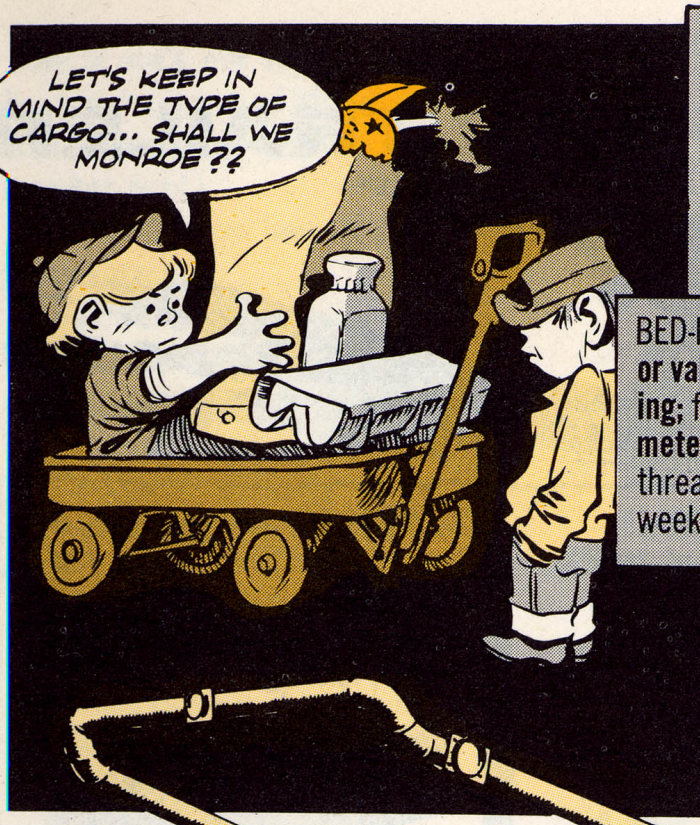


INSTRUCTION PLATE — No protective coat of oil, painted over; bed-leveling pump clips loose, missing; chain missing, broken, not attached to frame or pump handle; pump handle missing.

TIRES—**Treads dangerously or unevenly worn, cut deep to fabric;** wrong pressure (34 PSI is right); valve caps missing, loose; valve stems pinched, nails, glass imbedded in tires, stones wedged between duals.

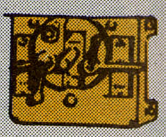
WHEELS—**Wheel bearings loose, dry;** adjustment-nut loose, return spring broken; **mounting nuts loose, missing;** wheels toed in; front turning stops missing, loose.

P.S. MORE



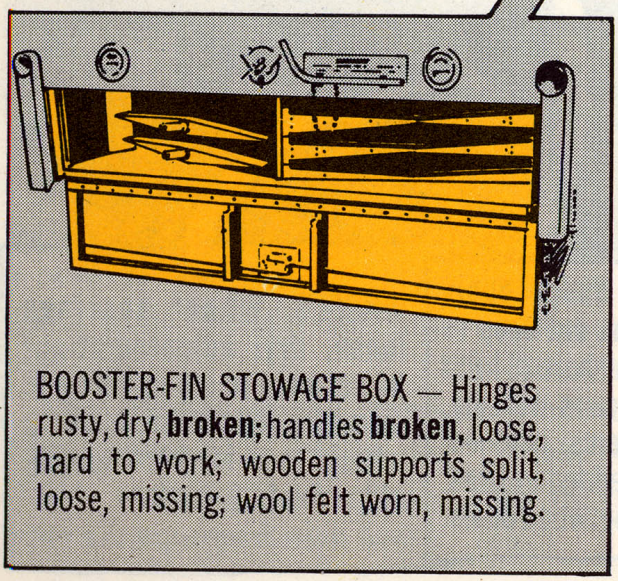
LOCKING BAR—Twisted out of line, **missing;** flat head pin sheared, missing; cotter pins broken, missing; retaining spring clip weak, broken, missing.

BED-LEVELING CONTROLS—**Selector valve heads loose, broken, missing;** filter plug worn, dirty, missing; **metering valve too tight;** filler cap threads worn. (Exercise controls weekly to prevent freezeups).

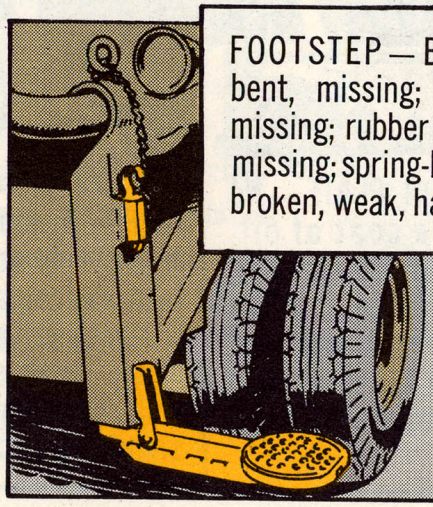


TORQUE RODS — Bent, loose, bushings worn, hardened, cracked. (Coat surface with brake fluid).

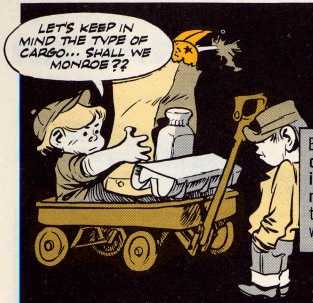
MISSILE NOSEGUARD BUMPER — Split, bent, dented; sockets, split, cracked; slip pins missing; chain broken, missing, not attached to frame.



BOOSTER-FIN STOWAGE BOX — Hinges rusty, dry, **broken;** handles **broken,** loose, hard to work; wooden supports split, loose, missing; wool felt worn, missing.



FOOTSTEP — Bolt hinge bent, missing; cotter pin missing; rubber stop worn, missing; spring-loaded latch broken, weak, hard to work.



LOCKING BAR—Twisted out of line, **missing;** flat head pin sheared, missing; cotter pins broken, missing; retaining spring clip weak, broken, missing.

BED-LEVELING CONTROLS—**Select-or valve heads loose, broken, missing;** filter plug worn, dirty, missing; **metering valve too tight;** filler cap threads worn. (Exercise controls weekly to prevent freezeups).

TORQUE RODS — Bent, loose, bushings worn, hardened, cracked. (Coat surface with brake fluid).

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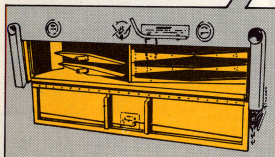

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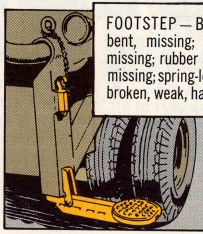

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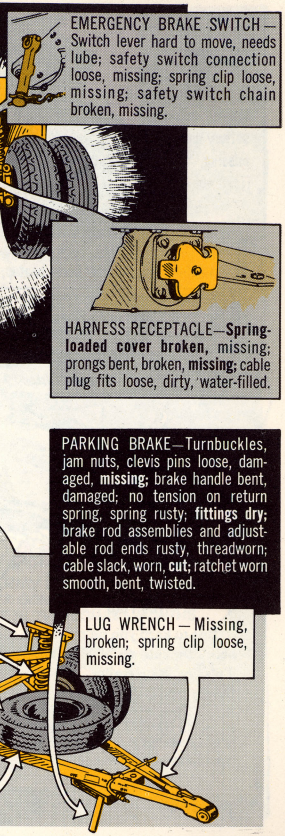


EMERGENCY BRAKE SWITCH — Switch lever hard to move, needs lube; safety switch connection loose, missing; spring clip loose, missing; safety switch chain broken, missing.

INTER-VEHICULAR HARNESS — Kinked, cracked, frayed, worn, coated with oil, clamps **broken, missing;** wires frayed; connections worn, dirty, **missing;** contacts burned, busted, spring-loaded cover broken, missing.

HARNESS RECEPTACLE—**Spring-loaded cover broken,** missing; prongs bent, broken, **missing;** cable plug fits loose, dirty, water-filled.

PARKING BRAKE—Turnbuckles, jam nuts, clevis pins loose, damaged, **missing;** brake handle bent, damaged; no tension on return spring, spring rusty; **fittings dry;** brake rod assemblies and adjustable rod ends rusty, threadworn; cable slack, worn, **cut;** ratchet worn smooth, bent, twisted.

SHOCK ABSORBERS—Loose, **broken, worn, fluid leaks** (They're shot if cool to touch after running vehicle).

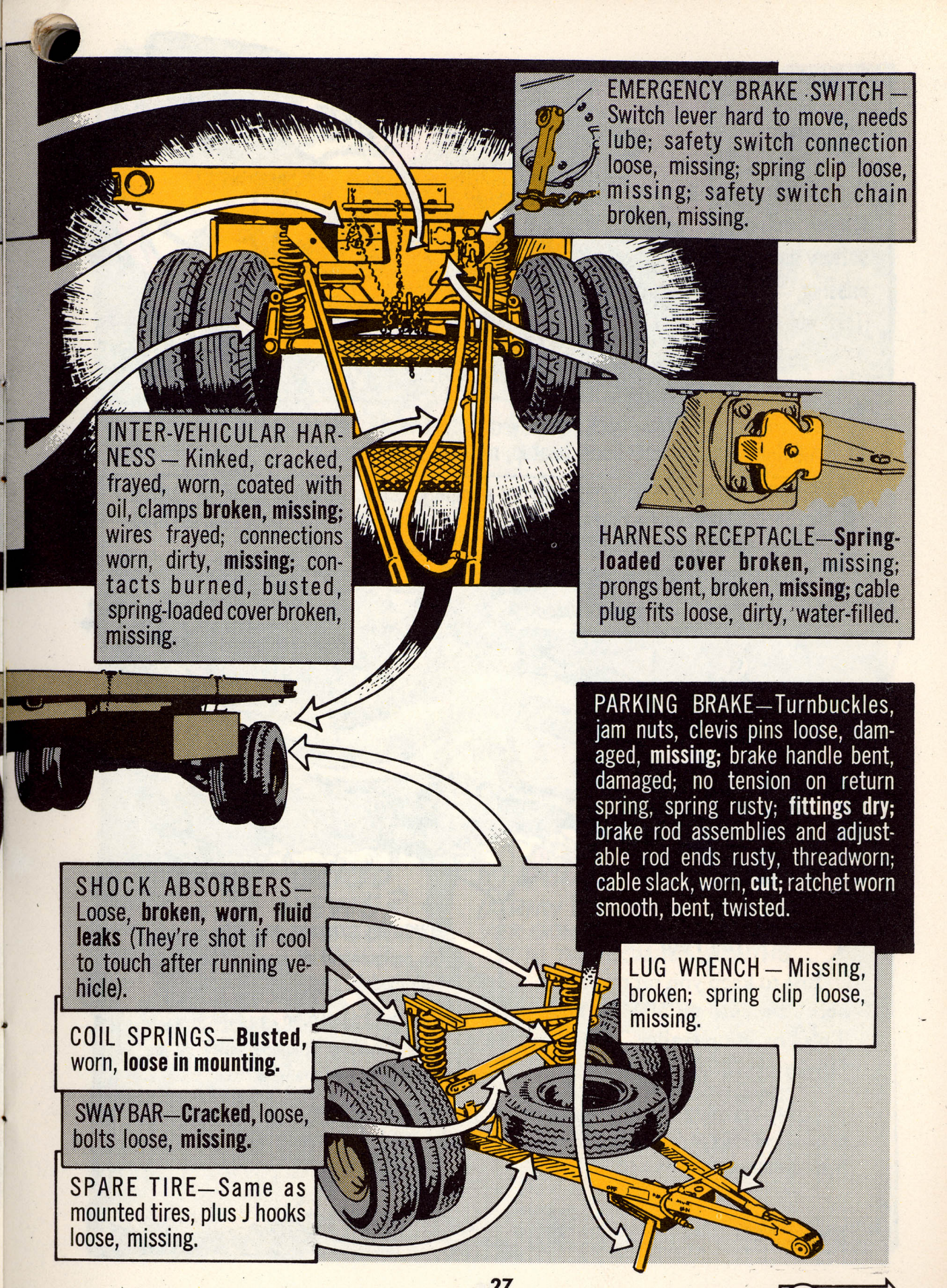
COIL SPRINGS—**Busted,** worn, **loose in mounting.**

SWAY BAR—**Cracked,** loose, bolts loose, **missing.**

SPARE TIRE—Same as mounted tires, plus J hooks loose, missing.

LUG WRENCH — Missing, broken; spring clip loose, missing.

MORE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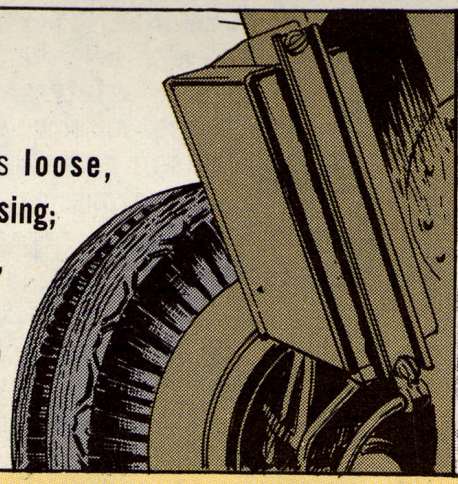
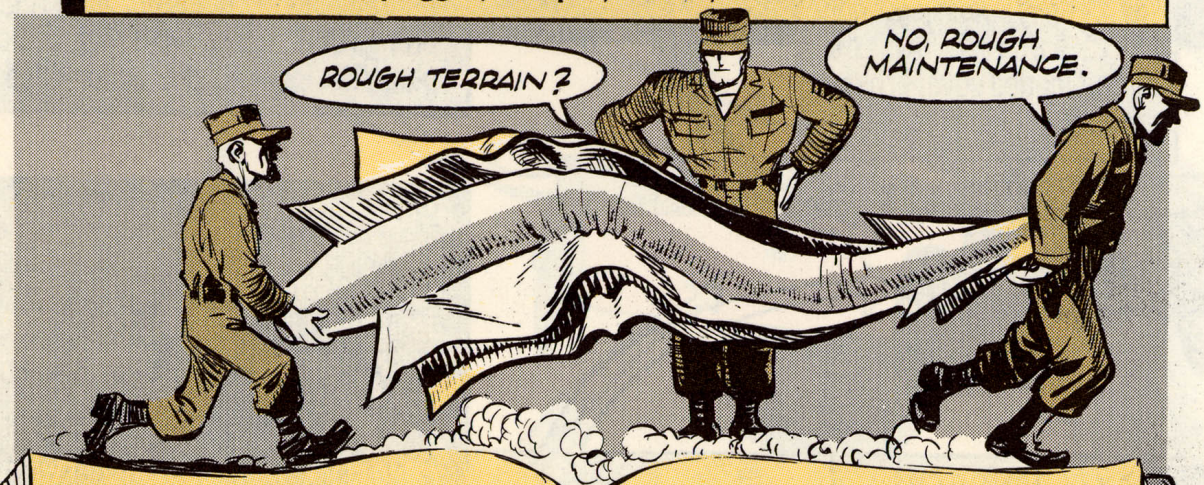
PS MORE

HOT SHOT BATTERY— Connections **loose,** frayed, **missing;** battery **dead, missing,** (Test weekly)



ELECTRIC SYSTEM—Check for frayed, **defective** wiring; poor, **worn, missing insulation, loose** connections; beatup, missing, loose clamps.

HYDRAULIC SYSTEM—Check **for no pumping action;** level of fluid in master cylinder; leaks in tie-down cylinder, lines, pump, reservoir; poor, loose, mud-caked connections; **plugged, crimped, dented, chafed lines.**



PUB POOP

Just to keep you on the ball, here's the info on MWO's and TB's for your trailer. (Check DA Pam 310-4 for later ones).

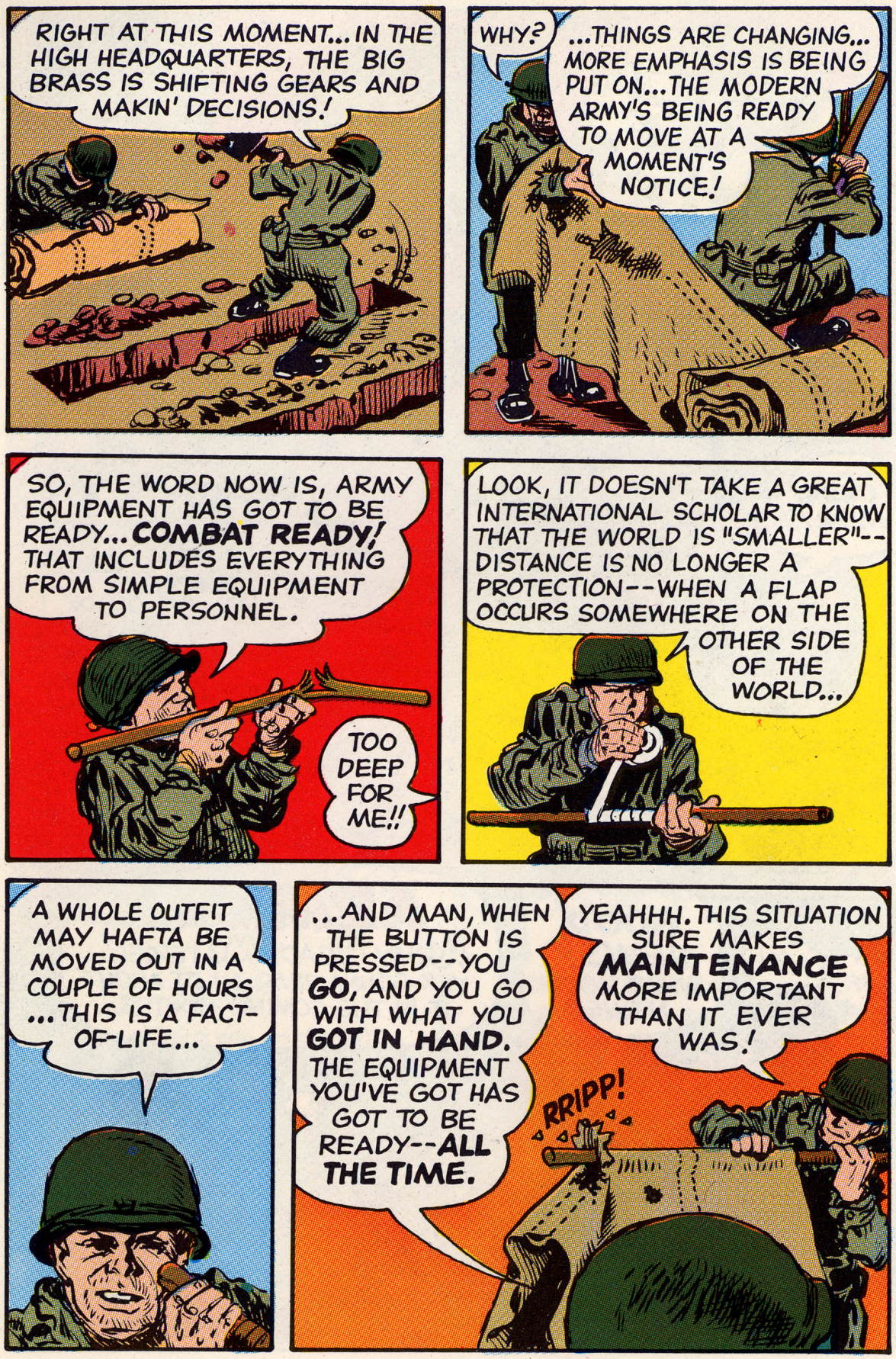
TB 9-2330-212-20/2 (Dec 58) applies to the installation of surface ball check type lube fittings for both models.

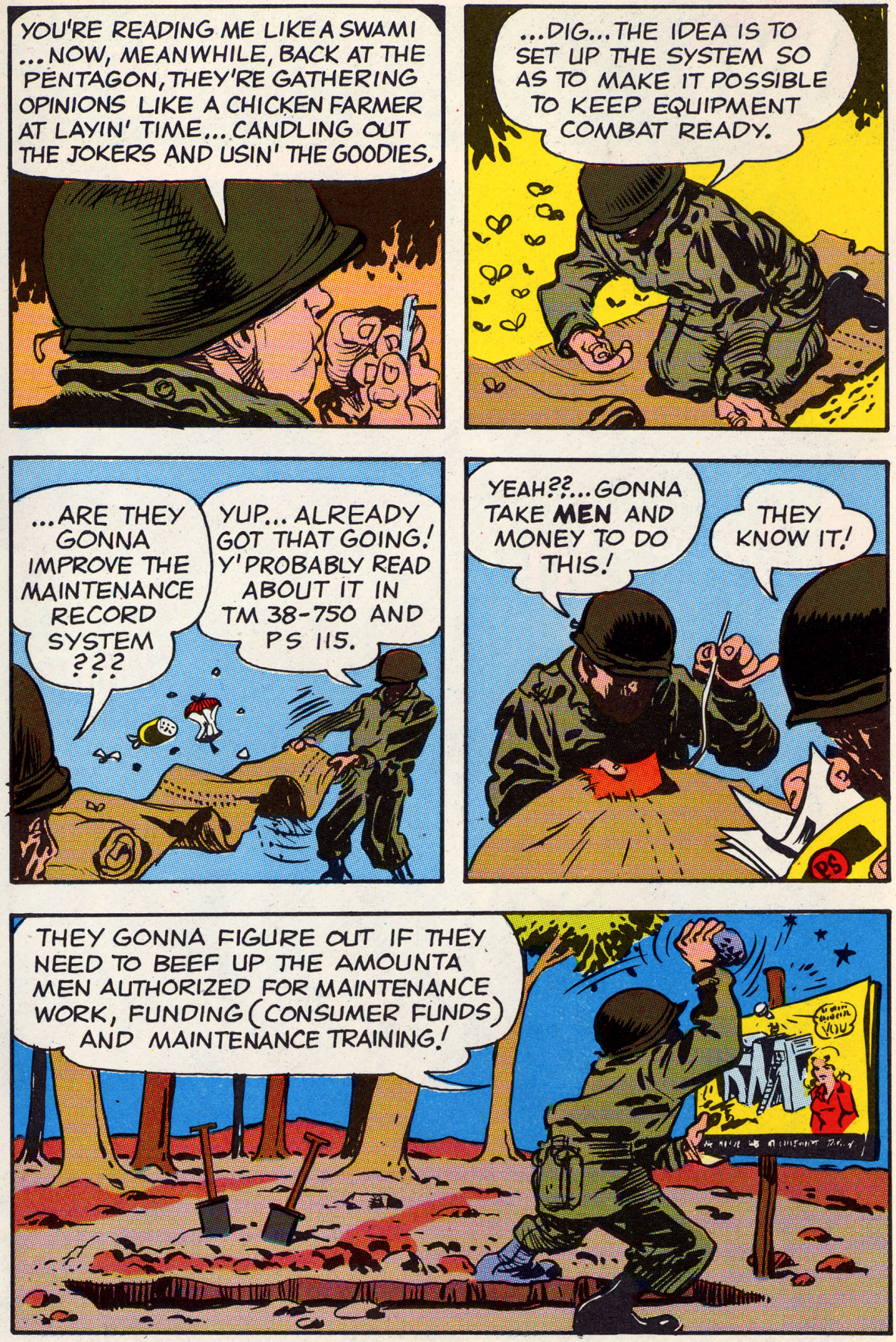
MWO-ORD G789-W5 (Apr 58) provides for replacement of stowage boxes on both models.

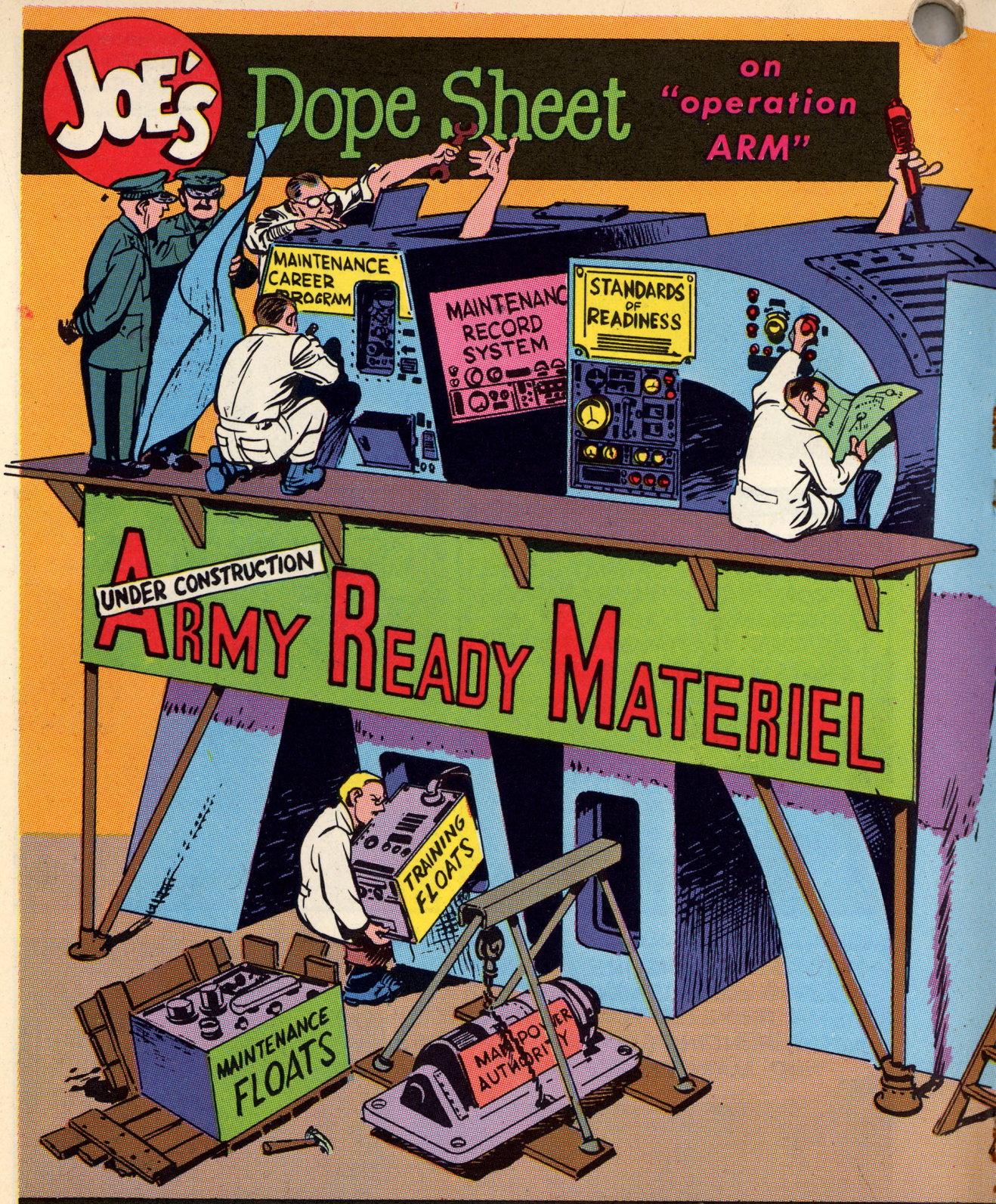
MWO 9-2330-212-20/3 (Apr 58) deals with providing drainage holes in the stowage box on model M261.

MWO 9-2330-212-20/5 (Jan 59) repositions the air reservoir tank on the M261A1.

JOE'S DOPE
THE BIG ARM
C'MON, HURRY!!
OK, OK, I WAS DELAYED LISTENIN' TO SOME GOOD NEWS!
PUFF!
PUFF!
PUFF!
GOOD NEWS? WHAT GOOD NEWS?
ARM... OR ARMY READY MATERIEL. YER GONNA HEAR A LOT ABOUT IT IN THE COMING MONTHS...

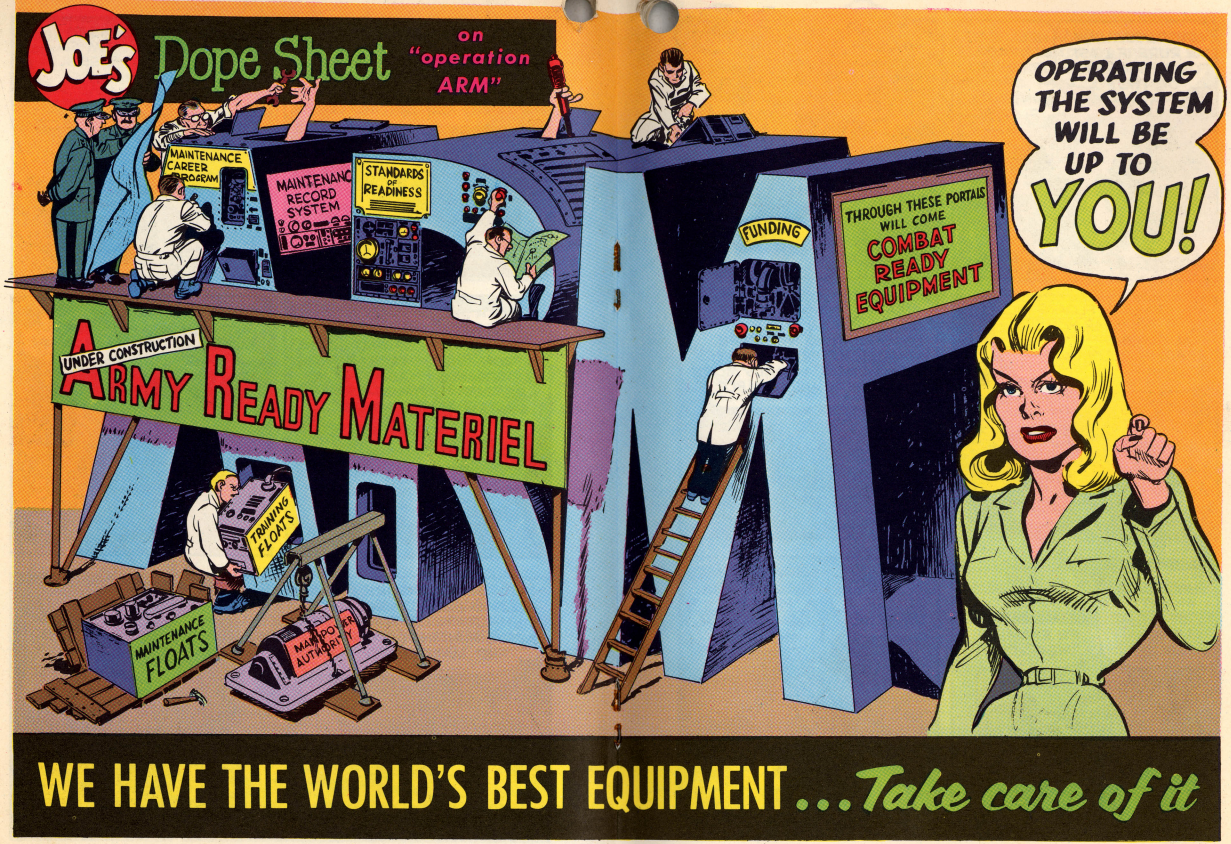

RIGHT AT THIS MOMENT... IN THE HIGH HEADQUARTERS, THE BIG BRASS IS SHIFTING GEARS AND MAKIN' DECISIONS!
WHY?
...THINGS ARE CHANGING... MORE EMPHASIS IS BEING PUT ON...THE MODERN ARMY'S BEING READY TO MOVE AT A MOMENT'S NOTICE!
SO, THE WORD NOW IS, ARMY EQUIPMENT HAS GOT TO BE READY... COMBAT READY! THAT INCLUDES EVERYTHING FROM SIMPLE EQUIPMENT TO PERSONNEL.
TOO DEEP FOR ME!!
LOOK, IT DOESN'T TAKE A GREAT INTERNATIONAL SCHOLAR TO KNOW THAT THE WORLD IS "SMALLER"-- DISTANCE IS NO LONGER A PROTECTION--WHEN A FLAP OCCURS SOMEWHERE ON THE OTHER SIDE OF THE WORLD...
A WHOLE OUTFIT MAY HAFTA BE MOVED OUT IN A COUPLE OF HOURS ...THIS IS A FACT-OF-LIFE...
...AND MAN, WHEN THE BUTTON IS PRESSED--YOU GO, AND YOU GO WITH WHAT YOU GOT IN HAND. THE EQUIPMENT YOU'VE GOT HAS GOT TO BE READY--ALL THE TIME.
YEAHHH. THIS SITUATION SURE MAKES MAINTENANCE MORE IMPORTANT THAN IT EVER WAS!
RRIPP!


YOU'RE READING ME LIKE A SWAMI ...NOW, MEANWHILE, BACK AT THE PENTAGON, THEY'RE GATHERING OPINIONS LIKE A CHICKEN FARMER AT LAYIN' TIME... CANDLING OUT THE JOKERS AND USIN' THE GOODIES.
...DIG... THE IDEA IS TO SET UP THE SYSTEM SO AS TO MAKE IT POSSIBLE TO KEEP EQUIPMENT COMBAT READY.
...ARE THEY GONNA IMPROVE THE MAINTENANCE RECORD SYSTEM ???
YUP... ALREADY GOT THAT GOING! Y'PROBABLY READ ABOUT IT IN TM 38-750 AND PS 115.
YEAH??... GONNA TAKE MEN AND MONEY TO DO THIS!
THEY KNOW IT!
PS
THEY GONNA FIGURE OUT IF THEY NEED TO BEEF UP THE AMOUNTA MEN AUTHORIZED FOR MAINTENANCE WORK, FUNDING (CONSUMER FUNDS) AND MAINTENANCE TRAINING!



WE HAVE THE WORLD'S BEST EQ

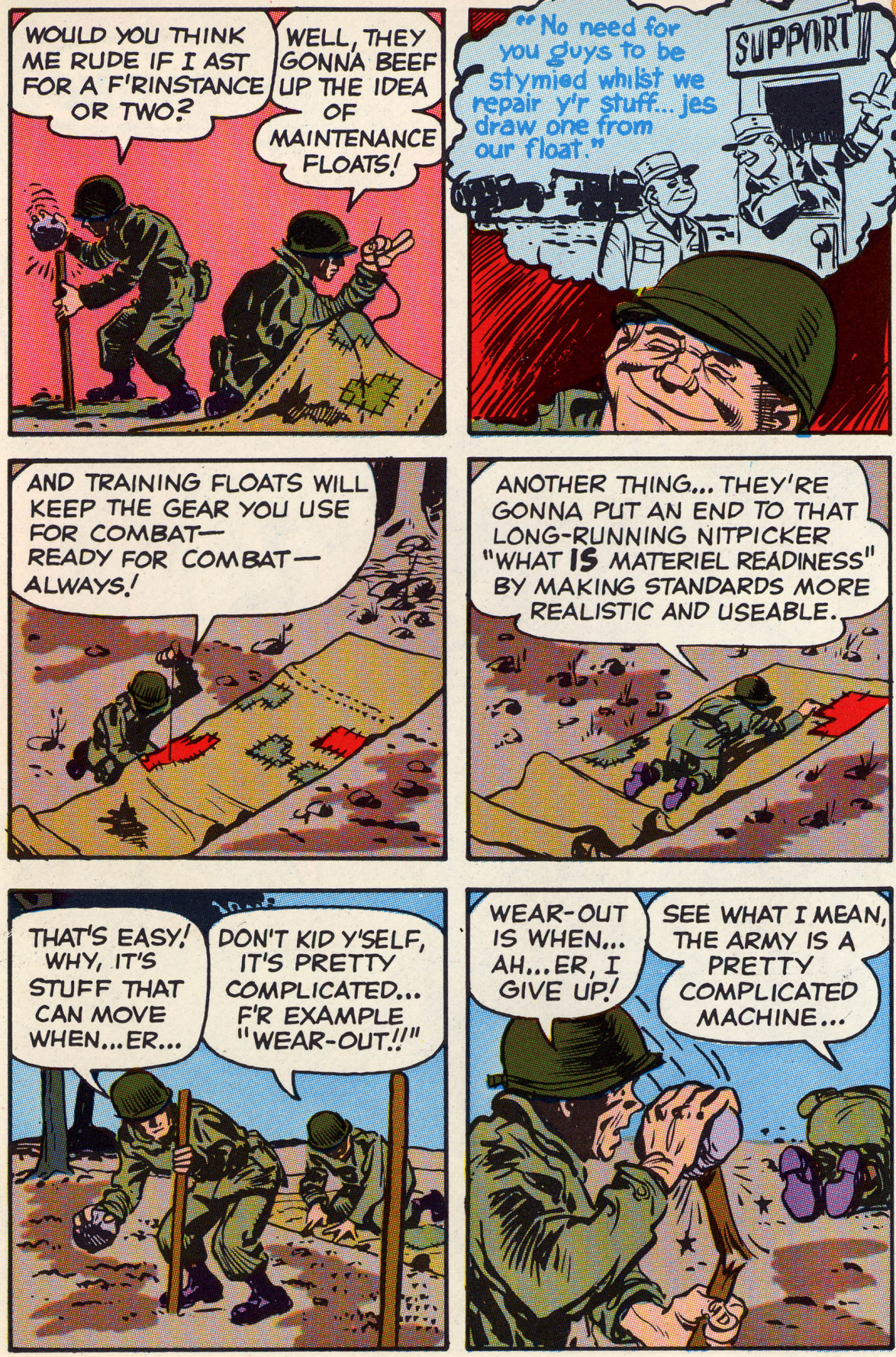
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BUL



IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

QUIPMENT ... *Take care of it*

LETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.


WOULD YOU THINK ME RUDE IF I AST FOR A F'RINSTANCE OR TWO?
WELL, THEY GONNA BEEF UP THE IDEA OF MAINTENANCE FLOATS!
"No need for you guys to be stymied whilst we repair y'r stuff... jes draw one from our float."
SUPPORT
AND TRAINING FLOATS WILL KEEP THE GEAR YOU USE FOR COMBAT— READY FOR COMBAT— ALWAYS!
ANOTHER THING... THEY'RE GONNA PUT AN END TO THAT LONG-RUNNING NITPICKER "WHAT IS MATERIEL READINESS" BY MAKING STANDARDS MORE REALISTIC AND USEABLE.
THAT'S EASY! WHY, IT'S STUFF THAT CAN MOVE WHEN...ER...
DON'T KID Y'SELF, IT'S PRETTY COMPLICATED... F'R EXAMPLE "WEAR-OUT!!"
WEAR-OUT IS WHEN... AH...ER, I GIVE UP!
SEE WHAT I MEAN, THE ARMY IS A PRETTY COMPLICATED MACHINE...

IRREGARDLESS, THE MAIN OBJECT OF IT ALL IS FOR THE ARMY TO HAVE MEN AND EQUIPMENT THAT CAN MOVE TOGETHER ON VERY SHORT NOTICE AND THAT MEANS A WHOLE NEW ATTITUDE HASTA BE DEVELOPED!
YEAH, THE MORE EMPHASIS ON COMBAT-READY EQUIPMENT... THE MORE IMPORTANT IS THE MAN WHO DOES THE MAINTENANCE!
RIGHT... AND THEY RECOGNIZE THIS... SO MAINTENANCE MAY GET MORE EMPHASIS TWO WAYS-- FIRST--THEY'RE THINKING OF SETTING UP AN IMPROVED MAINTENANCE CAREER FOR OFFICERS.
THEN--FOR REGULAR LINE OFFICERS, NO CAREER WILL BE CONSIDERED COMPLETE UNLESS THE OFFICER HAS HAD AT LEAST ONE EQUIPMENT PHASE... SAY AS A UNIT MAINTENANCE OFFICER.
IN OTHER WORDS-- LINE OFFICERS WILL BE COMMANDING EQUIPMENT AS WELL AS MEN!
YOU MEAN (CHOKE) AT LONG LAST, MAINTENANCE IS GONNA GET STATUS? (MAINTENANCE IS REALLY MOVING UP IN THE WORLD!)
YES, AND THERE'LL BE COMMAND SUPPORT ALL THE WAY FROM STAFF TO THE MAN ON THE LINE ...NO KIDDIN'!!

HMMM
WOTSAMATTER, YOU SUDDENLY LOOK SAD!
YOU BET... THIS MEANS THAT NOW I'LL BE MAINTAINING ALL THE TIME-- EVEN DURING FIELD OPERATION.
AND WHAT'S MORE... I'LL NO LONGER HAVE MY OLD GRIPES TO BLAME...
TRUE... AS USUAL IT COMES RIGHT DOWN TO THE MAN ON THE LINE... AFTER "OPERATION ARM" GETS ALL SET, IT'LL DEPEND ON YOU TO MAKE IT WORK!

REPAIR PARTS PUZZLE

Dear Half-Mast,

Here's a real quickie for you to set the supply boys in my outfit straight on.

Is there a requirement that repair parts be cleaned or shined or may they be kept in preservatives?

If there is a requirement, would you quote the reference?

Sgt D. L. S.

Dear Sergeant D. L. S.,

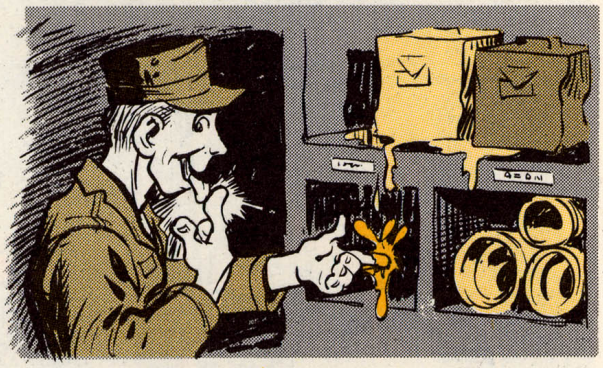
Real quick-like, Sarge, there's no requirement one way or the other regarding the storage of repair parts.

The main idea behind packaging and preserving is to keep the material in top condition until the day comes that you need it—right?

Removing the preservative before you need the material only paves the way for things like rust, corrosion and other damage — plus the unnecessary extra job of trying to keep it clean.

It 'pears to me that it's just good old common horse sense to keep repair parts preserved and packaged until the time comes to use them.

However—and it's a mighty important however—on-shelf items just can't be placed in a bin and forgotten. You've got to keep an eye on your stock and check it often for things like busted or wet packages, or corroded parts, etc.

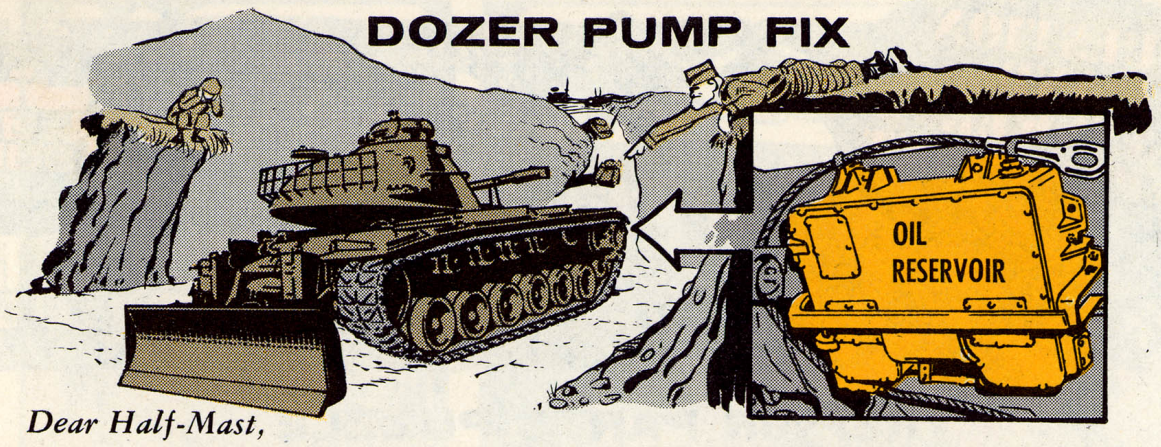


Of course, when you find an item in bad shape, it's up to you to check it out and correct the problem before you put it back on the shelf.

But, aside from that physical check, why buy additional trouble with a spit-and-polish routine when you can put that time to better use by practicing and preaching better preventive maintenance.

Half-Mast

DOZER PUMP FIX



Dear Half-Mast,

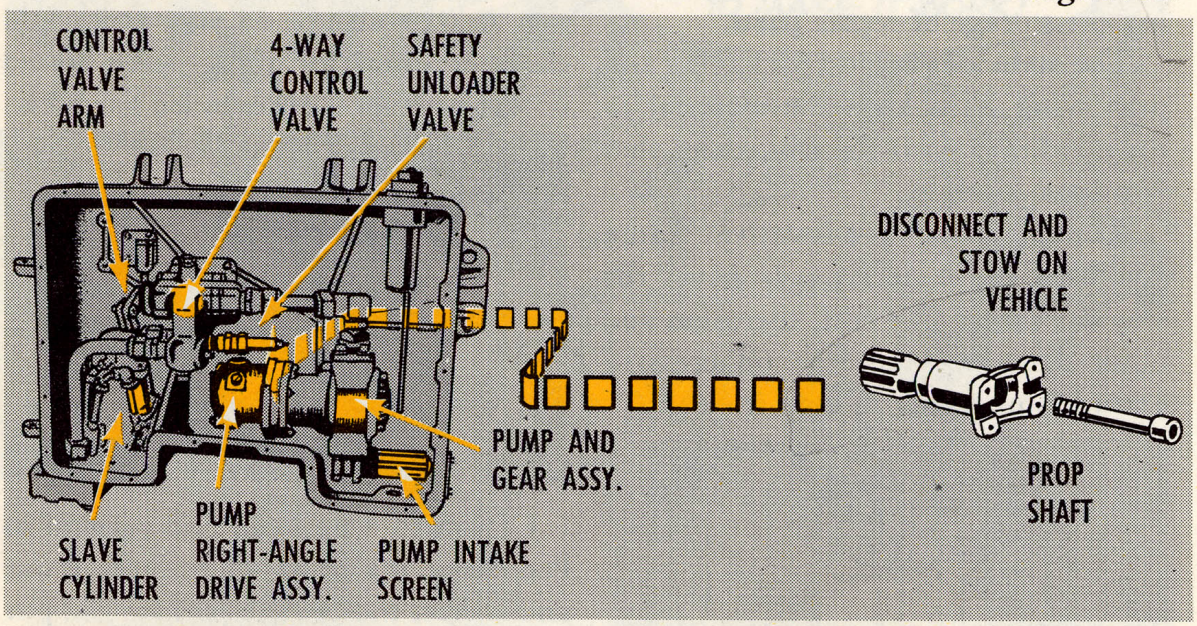
The oil reservoir on our M8 tank mounted dozer heats up during road marches.

It gets so hot the solder around the pump intake screen melts. The seals and gaskets on the control valve and slave cylinder get damaged.

The only thing we can think of to do is put the pump out of action so the heat won't build up there. We do this by disconnecting the prop shaft from the PTO to the hydraulic pump right-angle drive-assembly. When we're not actually dozing, we disconnect this shaft and stow it on the vehicle.

There must be a better way. Can you tell us what it is?

MSgt D. M.



Dear Sergeant D. M.,

You've got the best way.

You're getting the heat build-up because the 4-way valve won't go into the full detent position the way it ought to when you shift the operating lever into the "H" (Hold) position.

With the control valve in this wrong position, you get an oil-flow restriction. The pump builds up pressure and the oil heats up.

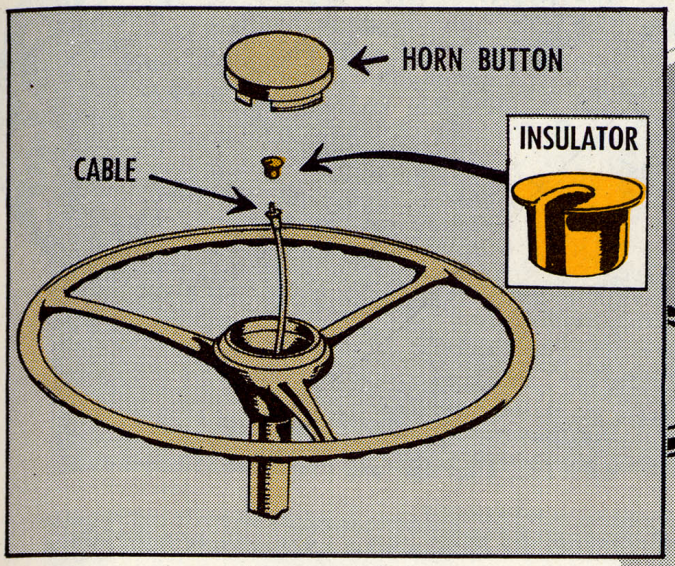
Half-Mast

TOOT TOOT

Dear Half-Mast,

I need the insulator, horn cable, (manufacturer's part CC-1314310) for my ¾-ton truck on account of without it the horn sounds off by itself on sharp curves. I can't find any FSN for this part, so how do I order it?

Sgt Mike



Dear Sergeant Mike,

The supply people figured this part wouldn't get lost, broken or worn out, so they don't have an FSN for it and they don't stock it. That means you can't order it in the normal way.

There is another way, tho'. Ask for it on either a DA 1546 or DD 1149, and your support can cannibalize the part from some junkyard vehicle.

They got the authority to do that under AR 750-50 (6 Mar 59) and Change 2 (12 Oct 60) if the parts are needed and can't be ordered through normal supply channels.

It is good to remember this way because it can help you in a lot of cases.

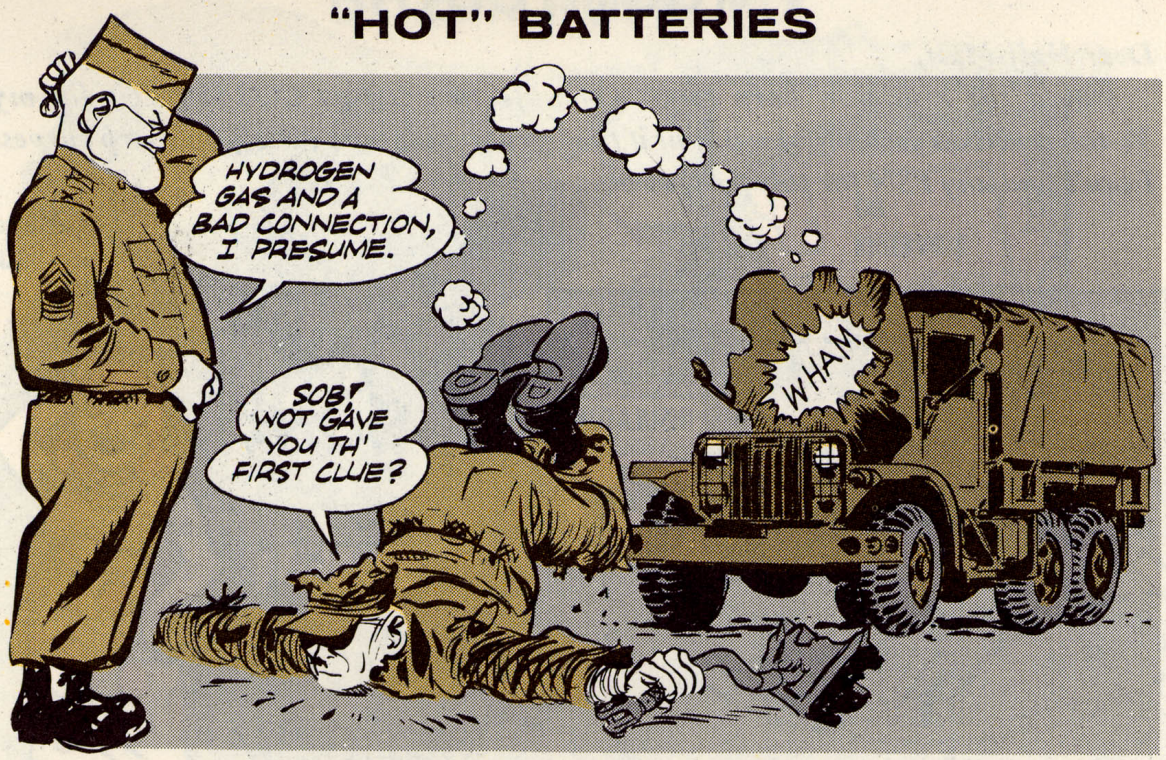
If your support unit can't find a junker with the part you need, you have to procure it locally.

You won't find it on the market so you'll have to make it.

This is easier than it sounds and can be kind of fun.

The part is plastic so you get some stuff from a hobby shop, make a mold using the part from another truck, and then cast it in plastic . . . but first try the easy way with a DA 1546 or DD 1149.

"HOT" BATTERIES



Dear Half-Mast,

We learned, the hard way, that it's smart to take extra care when putting a fresh-charged battery right to work in a piece of equipment. You can't be too picky about cleaning the posts and getting a solid connection with the cable clamps.

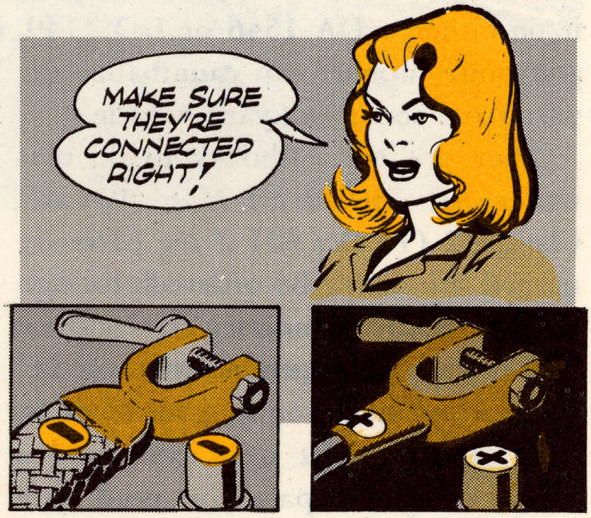
Hot off the charges, a battery that is still gassing can be easily exploded. All it takes to blow that hydrogen gas is the arc that jumps from a bad connection when you push the starter button.

Two of our units lost batteries that way lately. Nobody got hit, but the operators were somewhat chewed. Are there any other ways a battery can be blown?

SFC K. L. B.

Dear Sergeant K. L. B.,

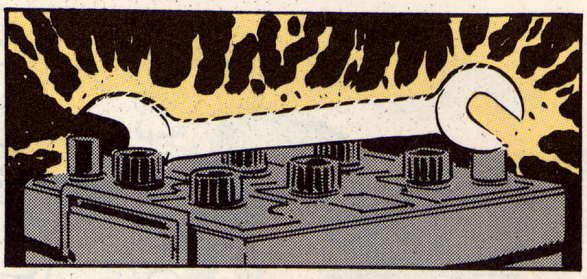
Yes, you can lose batteries by explosion in other ways—like crossing up the connections. Crossed connections won't always cause explosion, but they'll discharge the battery in a hurry, and could destroy the plates.

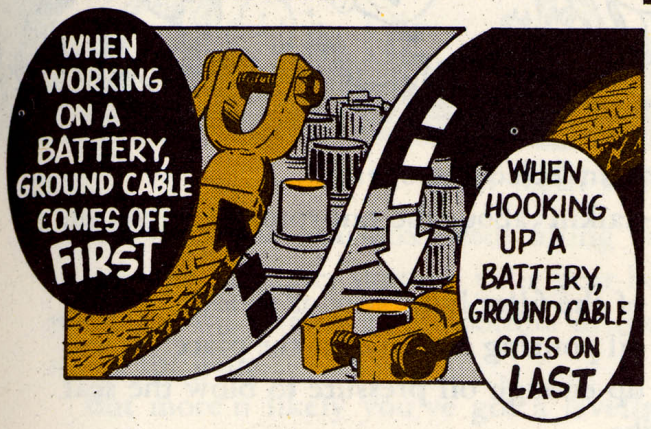


Most battery hookups are marked so it's no sweat to match the (+) positive cable with the (+) positive post, likewise the (—) negative cable with the (—) negative post. If the markings are

missing, or not clear, better stencil guide signs on the battery box.

But the commonest cause of battery explosion is carelessness that causes a short circuit—like dropping a metal tool across the terminals.





Like it tells you in TB ORD 1035, the best way to avoid this type of trouble is to remove the ground cable **first** when working on a battery—and to attach the ground cable **last** when hooking up the battery. This goes for all ground cables, if you have a multiple setup.

Half-Mast

A BORING MACHINE

Dear Half-Mast,

Our outfit finds plenty of good use for their earth-boring machines and pole setters.

However, there has been some question as to who has the maintenance responsibility for the contraption.

Sgt E. D.C.

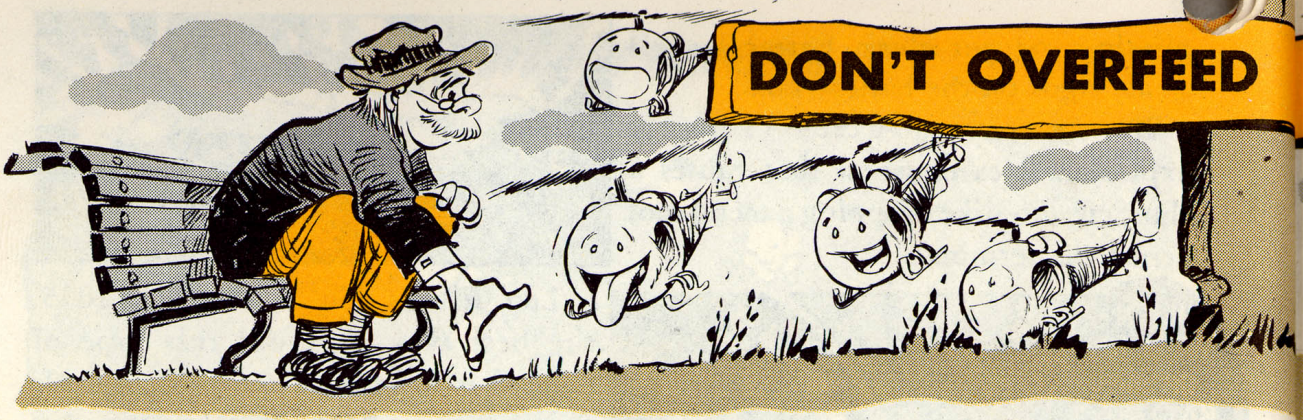
Dear Sergeant E. D. C.,

AR 701-2320 (30 Aug 61) should end all the argument on this score since it states that the logistical responsibility for the earth-boring machine and pole setter Models V17/MTQ and V18A/MTQ now belongs to Signal. These are truck-mounted models and are powered by the power take-off from the truck. Ordnance is responsible for the chassis.

Model V17/MTQ is covered by FSN 2320-498-8377 while the V18A/MTQ carries FSN 2320-498-8378. You can find repair parts for both models in TM 9-2320-209-20P.

As a reminder, the skid-mounted earth augers (gas, engine driven) in the supply system are the responsibility of the Engineers.

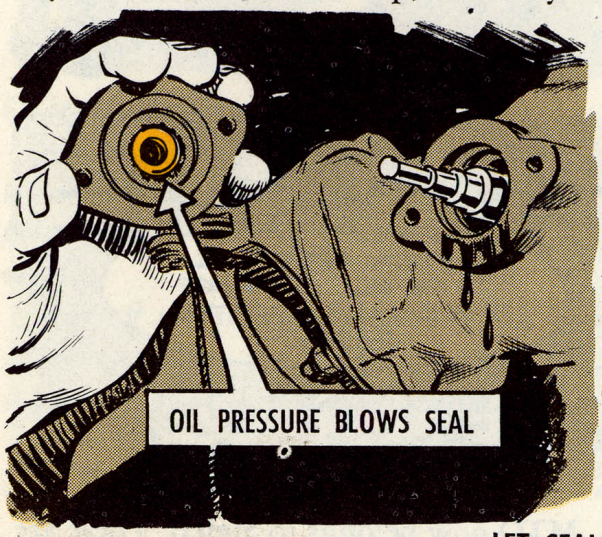
Half-Mast



Overfeeding a bird can be just as bad as underfeeding one.

Not talkin' about a visit to the zoo—talkin' about the tail-rotor gear-box on your Sioux (H-13).

If you feed the oil to 'er up to the top of the filler hole, sure as shootin' you're going to get leaky gear box seals with oil pouring out all over the place! When the housing is full, the gears can build up enough oil pressure to blow the seal in your tail-rotor-drive cap, real easy-like.



The reason for the level-plug, or sight-gage—depending on which one your bird has—is to guard against overfilling of the gear-box. This baby wants a lot of attention, as called for in Chapter 2, Section II, paragraph 2-14, of TM 55-1520-204-20 (6 Feb 62).

But let's take this overfeeding problem from the beginning. Say you just put on a new, or zero-timed gear-box and right off the bat she starts drippin' oil.

LET SEALS SEAT

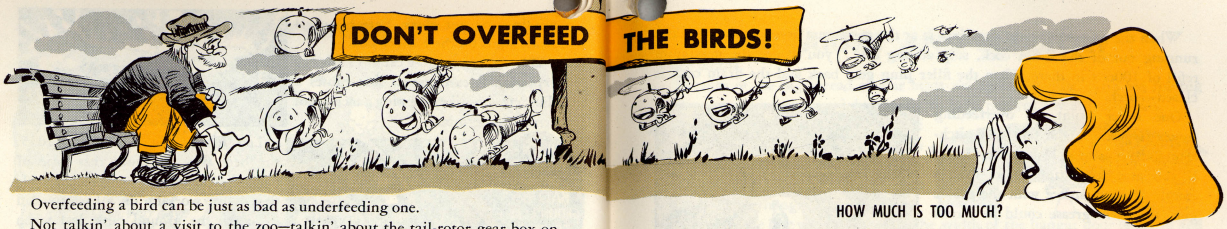
This may cause you to believe that somebody shoved a bum gear-box on you. But hold it a second! Remember that bit about giving seals on any new part a chance to seat, or work in? Sure you do.

The same thing holds true with the gear-box, only more so. In fact so many gear boxes are being yanked off of late that support's in a bind trying to keep 'em in supply.

So to stop the run on gear-boxes (and cut down on a lot of elbow grease in the bargain), just remember that your chopper wants to log at least 15 hours as a break in period **before** you make with the wrenches. That's the scoop in project 55-4649-H-13-3901, TB AVN 23-5-1 (14 May 62) . . . and para 2-14a of your —20.

After the break in period, if you've **still** got too much leakage, **then** it's time to change the gear-box.

DON'T OVERFEED THE BIRDS!



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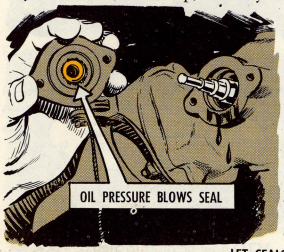

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HOW MUCH IS TOO MUCH?

It's when the gear-box needs filling **more than once between daily inspections.** For example, suppose your gear-box has a sight gage. The refill time is when the oil level is at the bottom of the gage. The maximum fill point is the top of the gage.

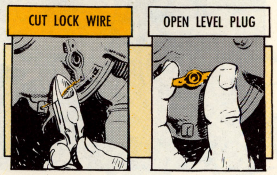
But more'n likely you've got a leveling plug with an overflow drain cock. The refill time on this one is when you open up the drain cock and you don't get any flow of oil. The maximum fill point is when the oil is level with the plug hole.

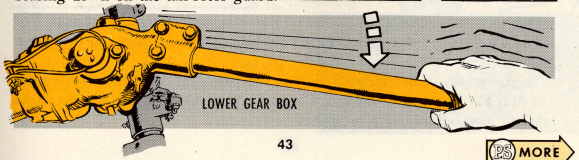
To be more exact, the minimum safe operating level is 80cc's of oil. The maximum is 100cc's. But if you don't want to mess with a measuring container here's the quick and easy way to fill your gear-box.

FILL JUST SO . . .

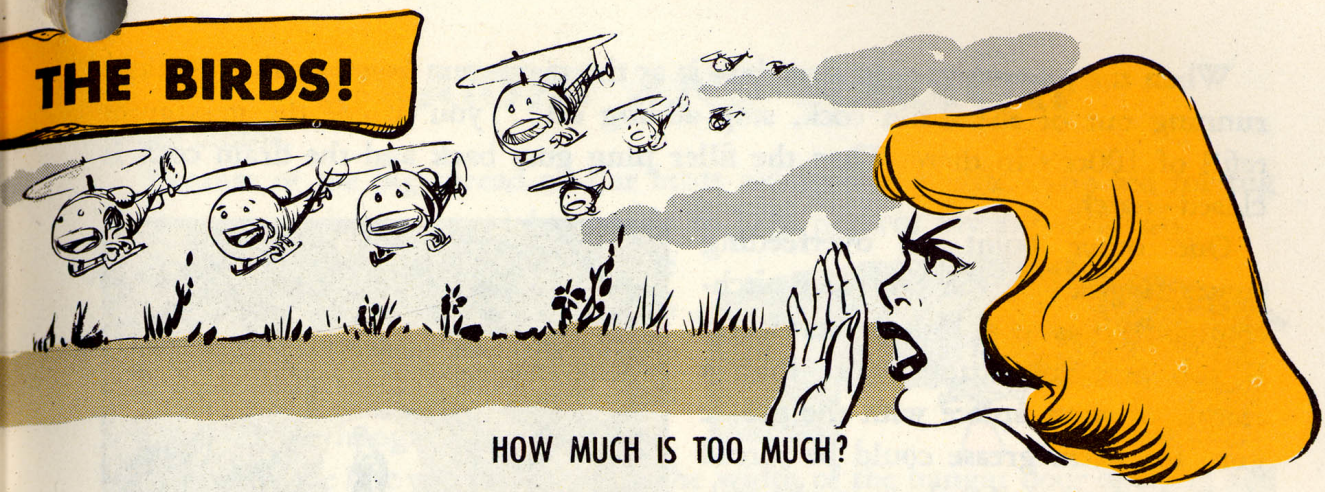
Set your bird flat on the skids and take the filler plug out. Cut the lock wire and open the level-plug draincock, or keep an eyeball glued on the sight-gage—depending on which you have. Then add the oil slowly so that you give it a chance to register.

Next, lower the gear-box slightly by bearing down on the tail-rotor guard.





MORE



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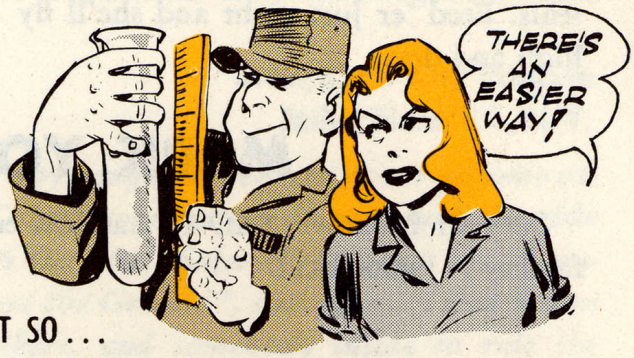

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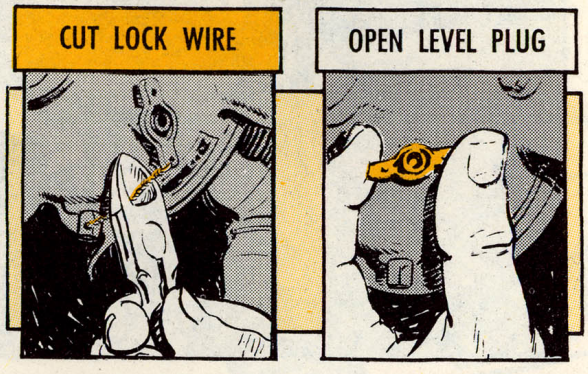
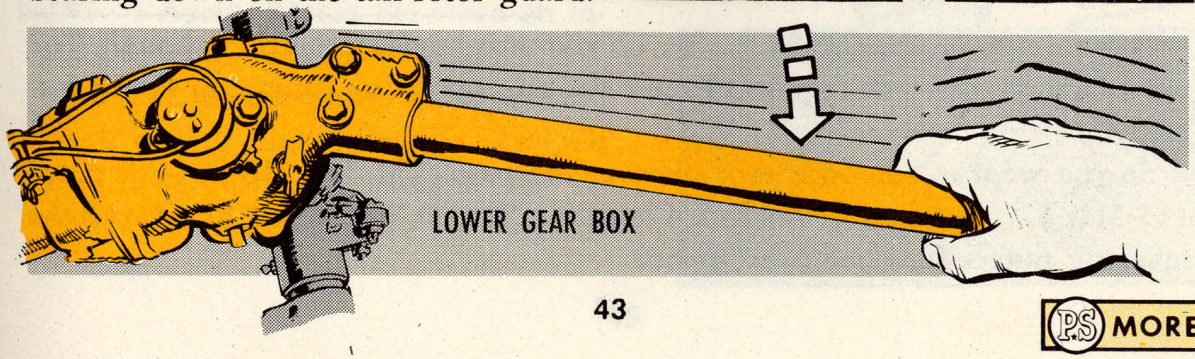
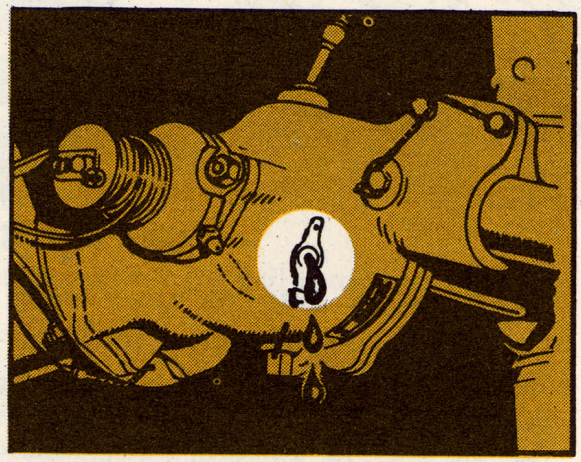




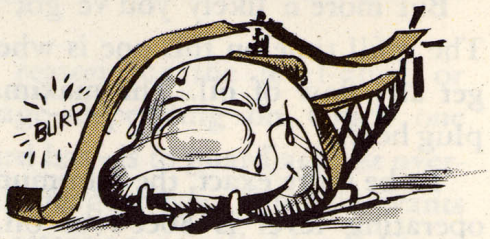
PS MORE

When the gage shows the gear-box is at the maximum level, or the oil starts running out of the drain cock, stop adding oil . . . you've got the maximum refill of 100cc's in there. Then the filler plug goes back and the drain cock is closed—natch.

One other point on overfeeding concerns greasing the tail-rotor-pitch-change fittings at a 25-hour servicing. If you give the fittings more than a couple of shots apiece with the grease gun, the extra grease could be forced through the breather hole in the tail-rotor drive-shaft. That can plug the hole and also give you leaky seals.

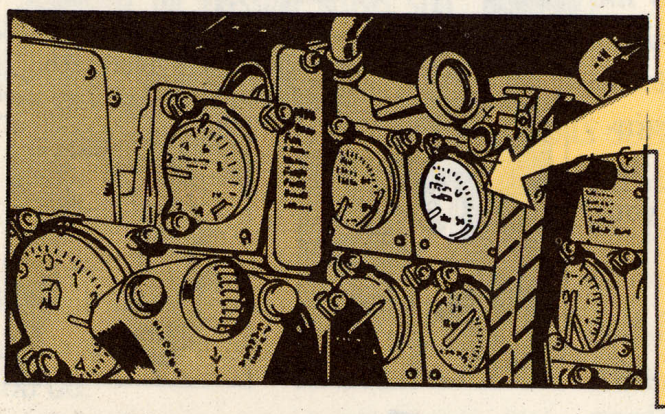


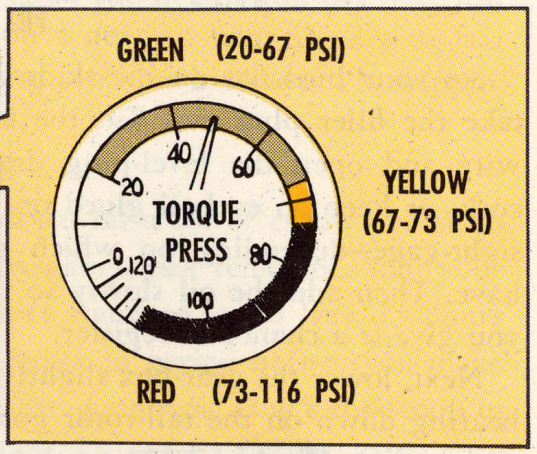
Seems as though there's just no substitute for good preventive maintenance practices on the gear-box. Overfeed a bird and she'll develop leaky seals. Feed 'er just right and she'll fly high and dry.



MARK YOUR DIALS

So your Mohawk (AO-1) has just entered the traffic pattern, fresh from the factory . . . good deal!





One thing you want to remember on your acceptance inspection, though. The manufacturer was not required to put the safe operating ranges on the instruments.

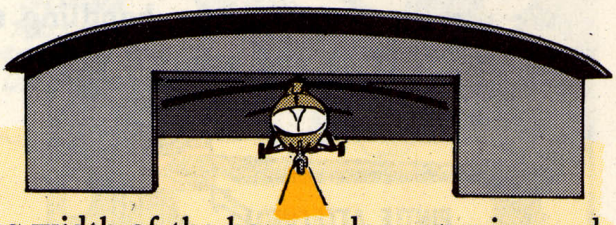
So you want to run your eyeballs over the basic TM 55-1510-204-20, dated (15 Mar 61), (revised 1 Nov 61). Chapter 2, Section VIII, figure 8-1, has all the marking ranges for your instruments.

STRAIGHT AND NARROW

Dear Editor,

Because of the big spread on our birds we figured a little extra aid for tug operators could come in mighty handy to help prevent towing accidents.

So we dreamed up a reference line for moving our Shawnees (H-21's) in and out of the hangar. It gives you the maximum side clearance where you need it—at the hangar door entrance.



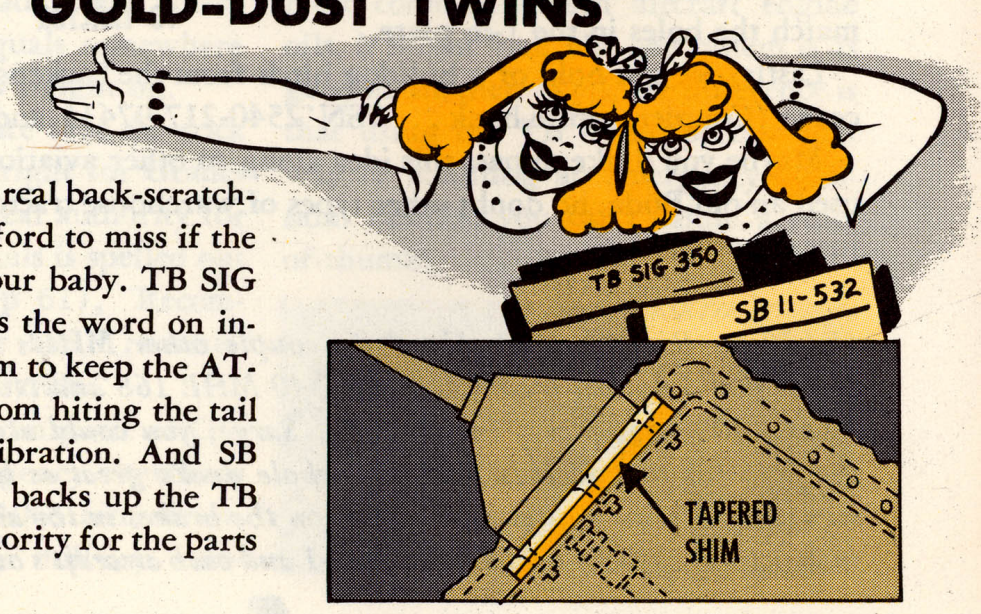
To locate the line you just measure the width of the hangar door opening and mark the floor at mid point. Beginning at this mid mark, you paint a six-inch-wide line on the floor from the door to the bird's parking area. Of course, if you have several birds in a hangar the reference line could end short of any single parking spot. That way the tug operator can use it as a reference to move any bird in and out.

The tug operator just keeps the nose wheel on the straight and narrow line all the time. Saves a lot of maneuvering time too, because he has his hangar door side clearance right-off.

Crew, 52nd Arty Brigade
Miller Field, S. I., N. Y.

(Ed Note—Sounds like a good idea for any hangar to help cut down on some expensive repairs to bent aircraft parts. 'Course your hangar doors want to be ***wide open*** *and paragraph 4b, AR 95-13 (26 Oct 60), "Safety Procedures for Operation and movement of Army Aircraft on the Ground", still goes . . . that means posting clearance guides, or wing walkers, and somebody inside to ride the brakes.)*

REAL GOLD-DUST TWINS



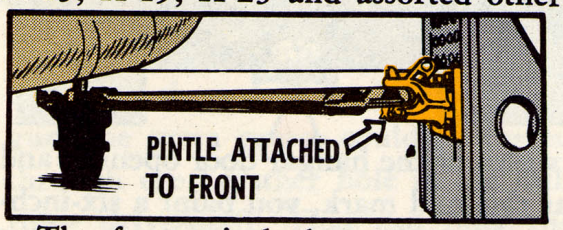
Here're a couple of real back-scratching pubs you can't afford to miss if the H-19 swingwing's your baby. TB SIG 350 (4 April 62) has the word on installing a tapered shim to keep the AT-454/ARC antenna from hiting the tail rotor during high vibration. And SB 11-532 (4 April 62) backs up the TB by providing the authority for the parts needed.

HANGAR TUG

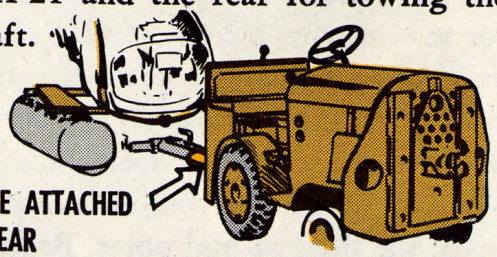
Dear Editor,

We asked our support shop to bolt a towplate and pintle to the front end of this 2600-lb Buda warehouse tractor—and now we have a jim-dandy hangar tug.

We use the front end for handling the H-21 and the rear for towing the H-13, H-19, H-23 and assorted other aircraft.



PINTLE ATTACHED TO FRONT



PINTLE ATTACHED TO REAR

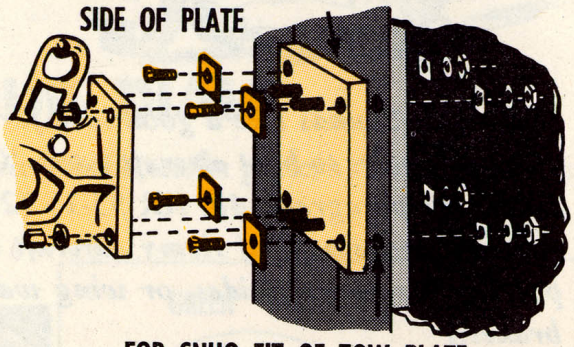
The front pintle lets you maneuver the big whirlybird quicker, easier and safer. That's because you're always facing the plane, whether you're pushing or pulling it (by backing up). You can see the blades all the way. And as long as you know what the nose-wheel's doing, you can turn real sharp.

We set the front pintle about 25 inches up from the ground to match the height of the H-21's nose-wheel.

This old Buda is the one that had the hinged driverless hitch tow bar installed under MWO 10-1666A-1 (4 Nov 57). We used the hinged part as a template and drilled 8 holes in a 12x8-in piece of 1-in plate, like so:

Then we made eight square washers (four back washers about 4x4-in and four front ones about 2x2-in) out of ¼-in plated and bored holes in 'em to match the holes in the 1-in plate.

HOLES MATCHED WITH FLANGE HOLES ARE COUNTERSUNK IN BACK SIDE OF PLATE



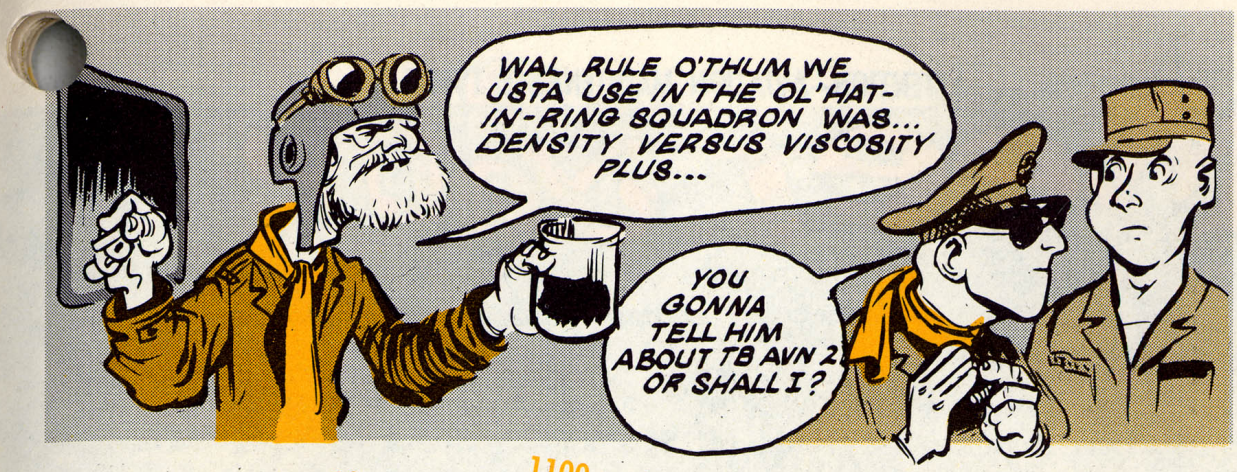
...FOR SNUG FIT OF TOW PLATE TO TRACTOR

Lastly, we got hold of a bulldog hitch from the backend of an NC-10 Federal crane (Coupler, pintle hook . . . FSN 2540-217-9743) and installed that.

Maybe you'd like to pass this idea along to other aviation folks. Although we used an old Buda, no doubt other types of warehouse tractors could be converted just as easily.

Sgt August Leotta
Miller Field, S. I.

(Ed Note—Right you are. Here're a couple other MHE's with perforated push plates that'd do real nice: Clark ACT 40 MHE 168 and Northwestern MHE 158 —both 4000-pounders. Incidentally, Sarge, you could also use the pintle from the Jeep for this deal. In fact, the whole deal's great as long as you use a taxi signal man, side guides and a man on the brakes in the aircraft like the towing instructions called for in TM 55-405-1 and each aircraft's own maintenance TM.)



AIN'T NO SUCH RULE

A lot of old hands at the aircraft maintenance game have been using a shaky rule-of-thumb to convert military grade engine oils into commercial SAE ratings. And it works just good enough to fool you into believing it's reliable.

The "rule" goes like this:

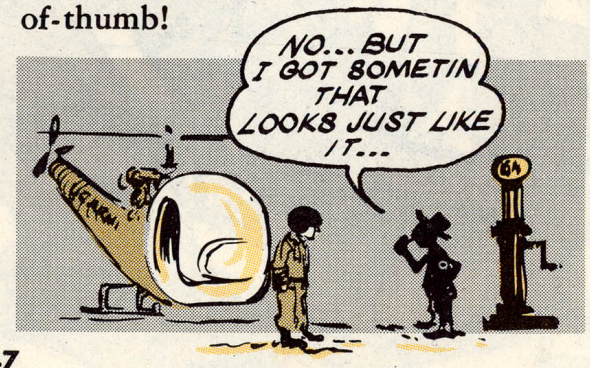
1. For military grades with even numbers, drop 1000 and divide by two. (Example: $1100 - 1000 = \frac{100}{2} = 50$ SAE.)
2. For military grades with odd numbers, drop 1000 and the last digit, then divide by two. (Example: $1065 - 1000 = 65 - 5 = \frac{60}{2} = 30$ SAE.)

Well it comes out right in these two cases. Only what happens when you run across Grades 1010 or 1005? Following the above rule, you'll end up with a big, fat goose egg for Grade 1005 when, actually, this grade equals somewhere between SAE 5 and 10 weight oil.

It's just a coincidence that the trick happens to come out right for Grades 1100 and 1065. The real authority for using SAE 50 and 30 oils is spelled out in TB AVN 2 (5 Sep 61), "Recommended Fuels, Engine and Transmission Oils for Army Aircraft."

Para 5 allows temporary use of OE-50 and OE-30 as emergency alternates for Grades 1100 and 1065 aircraft engine oils . . . and these military automotive engine oils are roughly equal to the like numbered commercial SAE ratings.

Since Grades 1100 and 1065 are the most commonly used aircraft engine oils, it might look like one system is as good as another. Well, the difference is that using the TB is the professional way of handling an emergency situation. Besides, you can't salute a rule-of-thumb!



ATTENTION—AVIATION MAINTENANCE TYPES! . . .

Meet Your NEW

Lay down that wrench, taxi yourself over to the maintenance hangar, and take ten for a briefing on this new air-mechanic's-guide-to-better-maintenance . . . the TM 55-405-series!

This bunch of TM 55's is the Army's own set of across-the-board pubs on aircraft general maintenance procedures. So all of these 405-series pubs come under the general heading of "Army Aviation Maintenance Engineering" manuals.

ATTENTION—AVIATION MAINTENANCE TYPES!...

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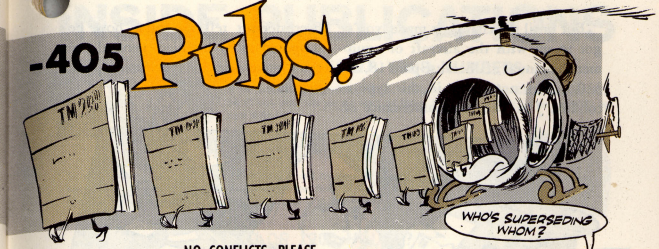


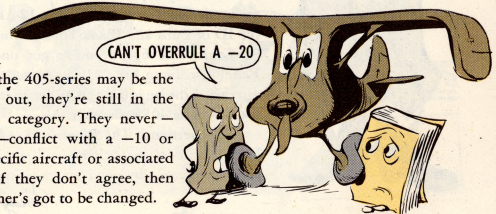
NO CONFLICTS, PLEASE

Each one of these 405-series manuals does not necessarily supersede any individual or group of TM 1 style pubs. In other words, you can't say that TM 55-405-2 does away with the old TM 1-1-1A-8 . . . or that TM 55-405-5 means you throw out your copy of TM 1-2R-1-15. No, Sir! Those general info type TM 1's are official until the Army says they've been rescinded.

But! When two general info pubs look like they're gonna butt heads with each other, para 18 of AR 310-1 (20 Mar 62) says:

"In case of conflict among provisions of publications, those publications of **later date** govern."

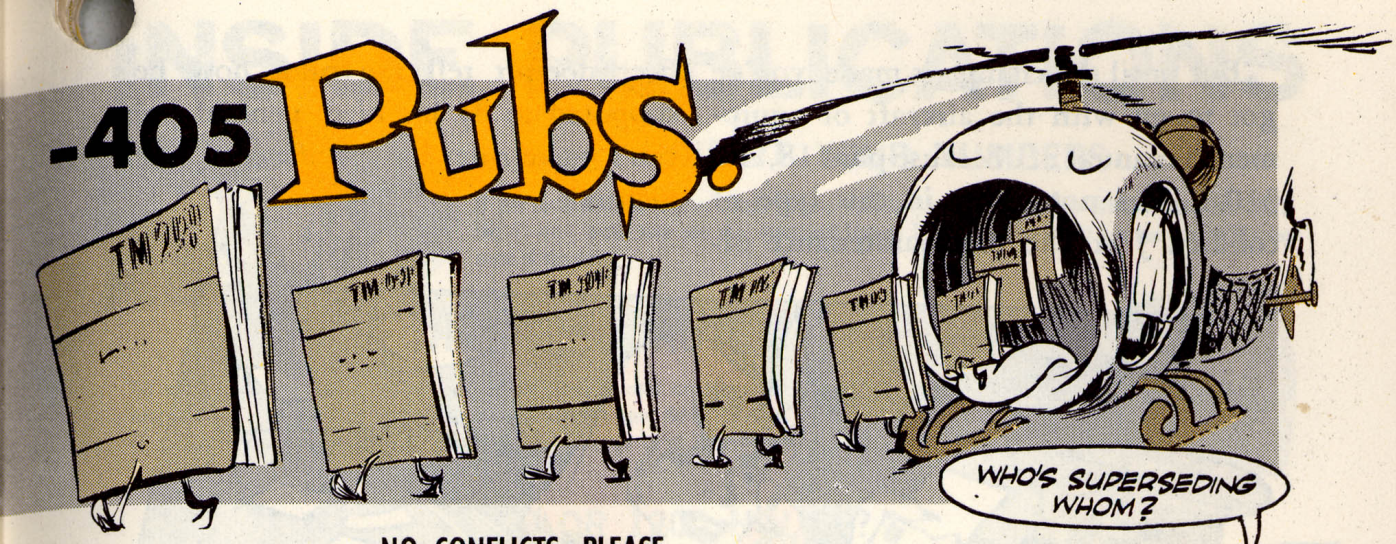
So when it comes to matching up publication dates, the 405-series wins in every case. Since it's going to be a while before every single part or section of an older TM 1—or TB AVN—is phased out by a later date TM 55, there'll be plenty of conflicting pubs crowding the shelf space in your unit reference library for a month or two of Sundays. If you see one of these potential conflicts poking its head out, treat the older pub like a thunderhead—stay out of it.



Although the 405-series may be the latest guides out, they're still in the **general info** category. They never—repeat never—conflict with a —10 or —20 on a specific aircraft or associated equipment. If they don't agree, then one or the other's got to be changed.

P.S. MORE

-405 Pubs.



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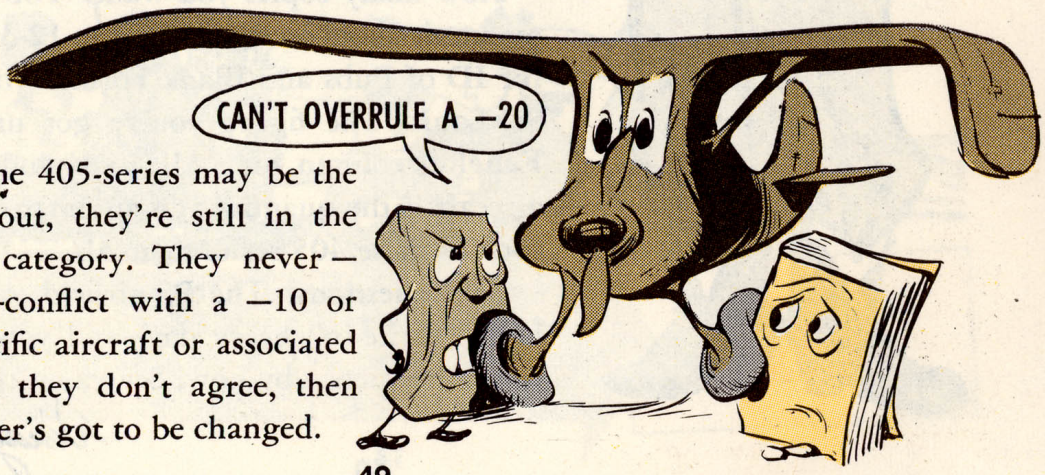

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P.S. MORE

But until the change is made, you've got to go with the aircraft or equipment's manual . . . because para 18, AR 310-1 does **not** apply in this type of conflict. Just like the maintenance officer doesn't tell the pilot how he's supposed to fly his bird, general pubs can't make rules for specific equipment manuals.

READ THE INDEX

You can't tell a book by its cover. And if you never get any further than the cover, you're never going to get over being confused about all the high-speed changes in aviation maintenance that're going on now.

For example, the index at the rear of TM 55-405-1 puts you in the know that this is your new guide on pulling test flights and maintenance operational checks . . . how to care for survival gear . . . storage instructions . . . maintenance of flight simulators . . . how to mark time replacement items . . . and more.

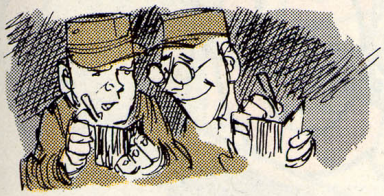
HOW MANY COPIES?

How many copies you want? You made up your own unit quota on that DA Form 12-31 (Requisition for ID of Pubs and Blank Forms) you mailed in to St. Louis. The figure you've got under the **First Echelon** column for "All Fixed and Rotor Wing" aircraft is the quantity you automatically receive on each of these 405-series manuals.

Any questions? The PS airfield is holding a 24-hour "write-in" every day—and you all know the tower frequency by now. See ya on the ramp!

Windy Windsock

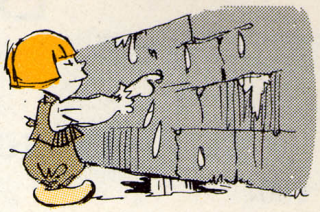
INSIDE PUBLICATIONS



UPDATE YOUR NUMBERS

If you're applying a starter-circuit jumper wire in your M60 tank like MWO 9-2350-215-20/7 Dec 61 says, make sure you also check out Change 1 dated 17 Apr 62. It has the latest FSN's for some of the parts.

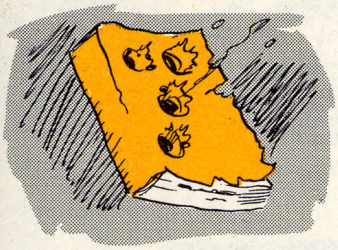
FOR THE TIME BEING...



Try using a ¼-amp fuse if you've been having diode burnout troubles while using the ½-amp fuse you're supposed to for the velocity gate scanner in your Hawk AN/MPQ-34 radar set. The ¼-amp fuse you want goes by FSN 5920-043-2641 on page 15 of TM 9-1430-503-20P-1.

1000 OR 1200 HOURS?

If you have one of those luxury class—"F" series seminoles (L-23) with an IGSO-480-A1A6 engine and you're wondering if the TBO is 1000 or 1200 hours, hunt up TWX TCMAC-EL-23-04-01287 (12 Apr 62). Only the 0-480-1 and 0-480-3 engines get the added 200 hours. But take heart! First time your bird goes to support at 1000 hours your engine gets an 0-480-3 retrofit label . . . no sweat after that.



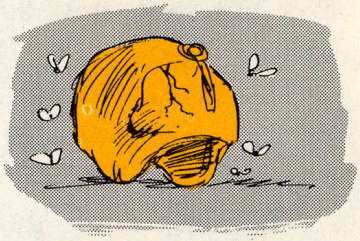
NO SWISS CHEESE—NO BINDER

If some of your -P type aircraft manuals come in completely bound, forget about hole punching. Only the loose-leaf type pubs go into Army binders. Bound manuals can be filed separately. When parts lists go back to twice-a-year revisions, instead of quarterly, they may get the "Swiss Cheese Style" 5-hole punch treatment . . . like PS 114 said.

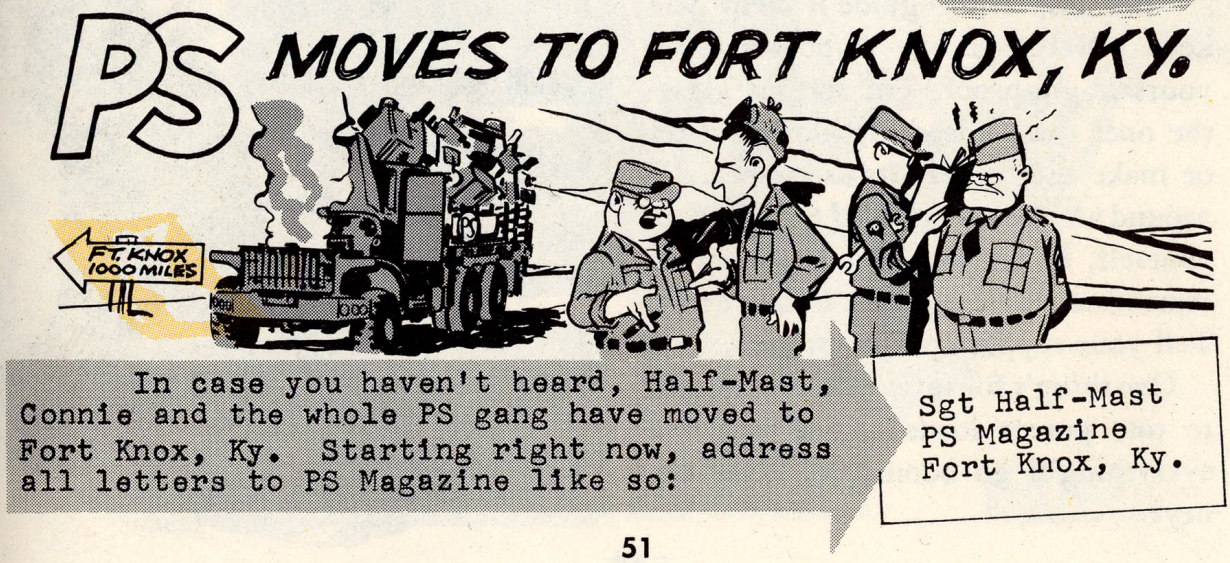
QM REPAIR LIMITS

For a fast round-up of poop on one-time repair limits for Quartermaster equipment, get hold of AR 750-428 (8 Jan 62). Tells you what regulations govern materials handling equipment (AR 750-3900-1), typewriters and office appliances (AR 750-30), and air delivery equipment (AR 750-1670-2). Also gives the repair limits for office furniture (55 percent), quarters furniture (65 percent), clothing (35 percent), 5-gal gas cans (35 percent), and all other items (65 percent).

KEEP A HEALTHY HELMET

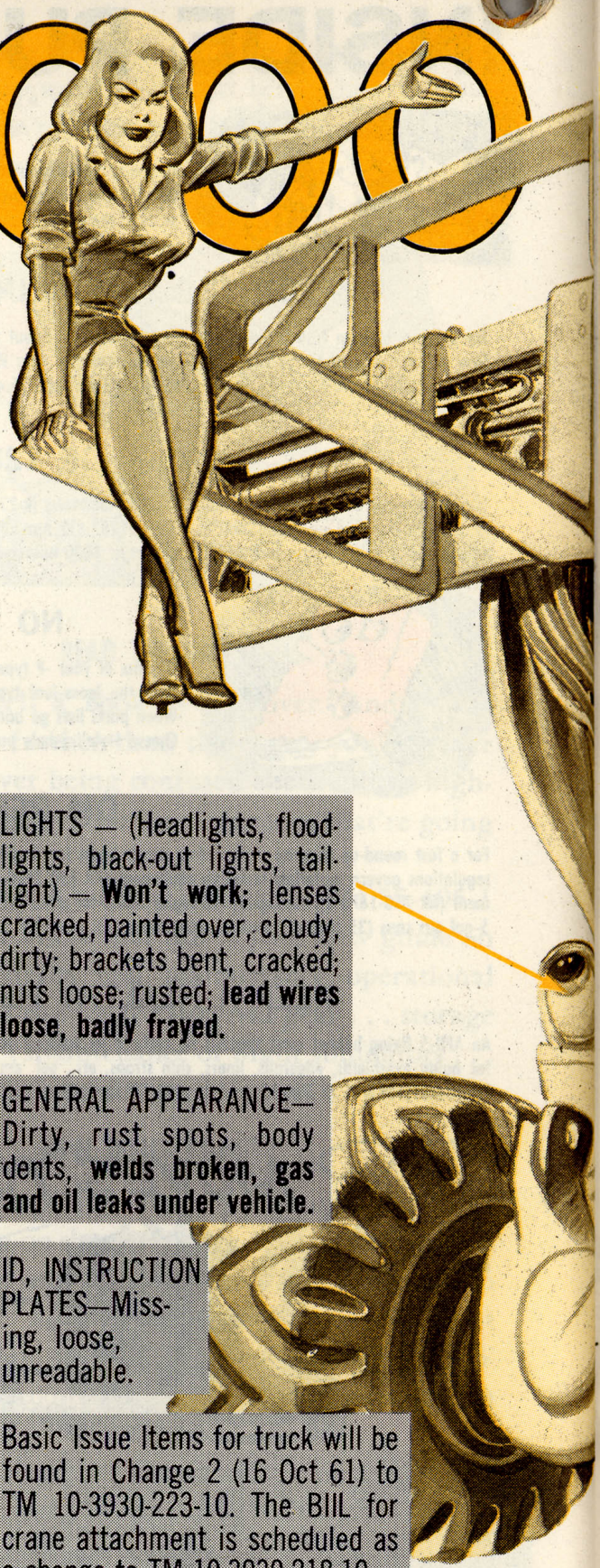


An APH-5 flying helmet most times is no better'n its weakest part. So, if you need replacements for aging eyeshields, edgerolls, liners, chin straps, etc., get 'em—quick. You'll find the FSN's in TM 10-8415-202-15 (2 Mar 60) and its -25P (27 Apr 60).



BE YOUR OWN INSPECTOR on the . . .

10,000



Quite a super MHE, man—this MR-100!

Whatever the script calls for—towing tractor, forklift or crane—he'll cop the Oscar every time, if you keep him in the pink.

MR-100's one of the most gifted actors in any theater of operation—strong boy, acrobat and stunt man all rolled into one. He can lift, tilt, rotate, reach and crab and cramp. He can climb like a goat and'll even wade in 5-foot surfs.

In a nutshell, he'll star in all the special moving scenes—like around missile sites, waterfronts and rail yards—wherever big stuff must be handled like a hatful of eggs.

This takes a lot of muscle and linkage . . . which adds up to the need for real heads-up PM and operation.

This inspection guide'll help you keep MR-100 in top shape and keep yourself gig-proof. The serious gigs—the ones that'll deadline him right off or make him unsafe to use, especially around ammo—are in **bold type.** Fix'em yourself, if you can. But if you can't, remember relief is just a holler away. Tell your support people pronto.

One thing's for sure: MR-100's slated to tote potent loads . . . one slip and everything'll go boom! So, heads-up, hey?

LIGHTS — (Headlights, floodlights, black-out lights, taillight) — **Won't work;** lenses cracked, painted over, cloudy, dirty; brackets bent, cracked; nuts loose; rusted; **lead wires loose, badly frayed.**

GENERAL APPEARANCE—Dirty, rust spots, body dents, **welds broken, gas and oil leaks under vehicle.**

ID, INSTRUCTION PLATES—Missing, loose, unreadable.

Basic Issue Items for truck will be found in Change 2 (16 Oct 61) to TM 10-3930-223-10. The BIIL for crane attachment is scheduled as a change to TM 10-3930-218-10.

BE YOUR OWN INSPECTOR on the . . .

10,000 LB. RTFL

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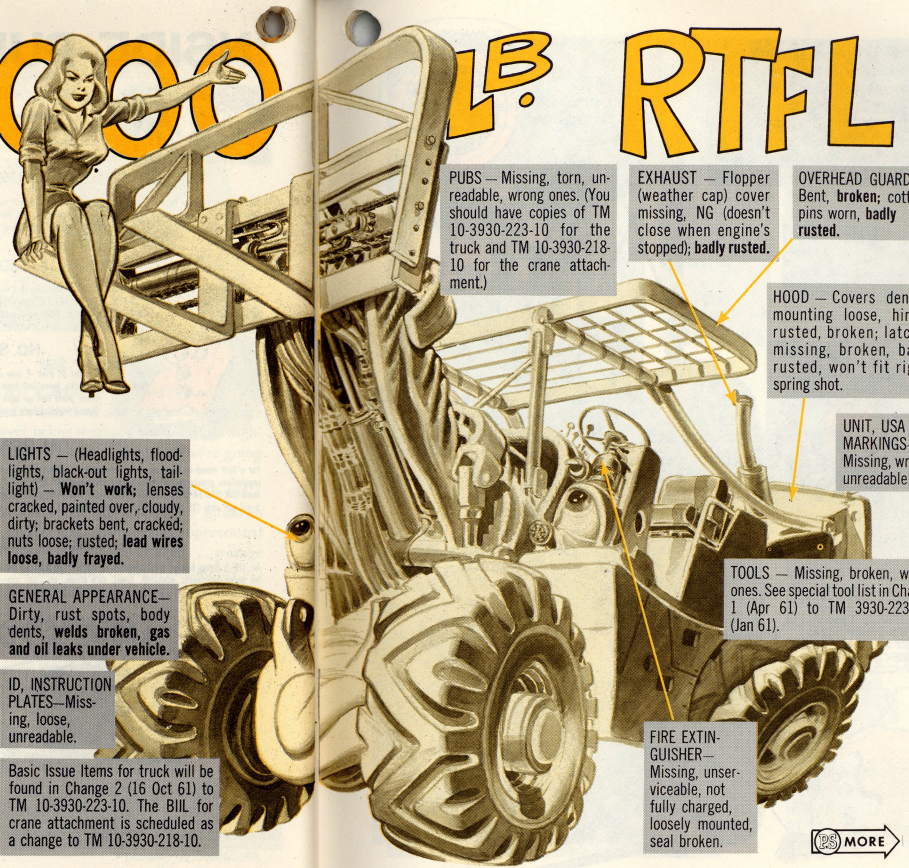

PUBS — Missing, torn, unreadable, wrong ones. (You should have copies of TM 10-3930-223-10 for the truck and TM 10-3930-218-10 for the crane attachment.)

EXHAUST — Flopper (weather cap) cover missing, NG (doesn't close when engine's stopped); **badly rusted.**

OVERHEAD GUARD — Bent, **broken;** cotter pins worn, **badly rusted.**

HOOD — Covers dented; mounting loose, hinges rusted, broken; latches missing, broken, badly rusted, won't fit right; spring shot.

UNIT, USA MARKINGS— Missing, wrong, unreadable.

LIGHTS — (Headlights, floodlights, black-out lights, taillight) — **Won't work;** lenses cracked, painted over, cloudy, dirty; brackets bent, cracked; nuts loose; rusted; **lead wires loose, badly frayed.**

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FIRE EXTINGUISHER— Missing, unserviceable, not fully charged, loosely mounted, seal broken.

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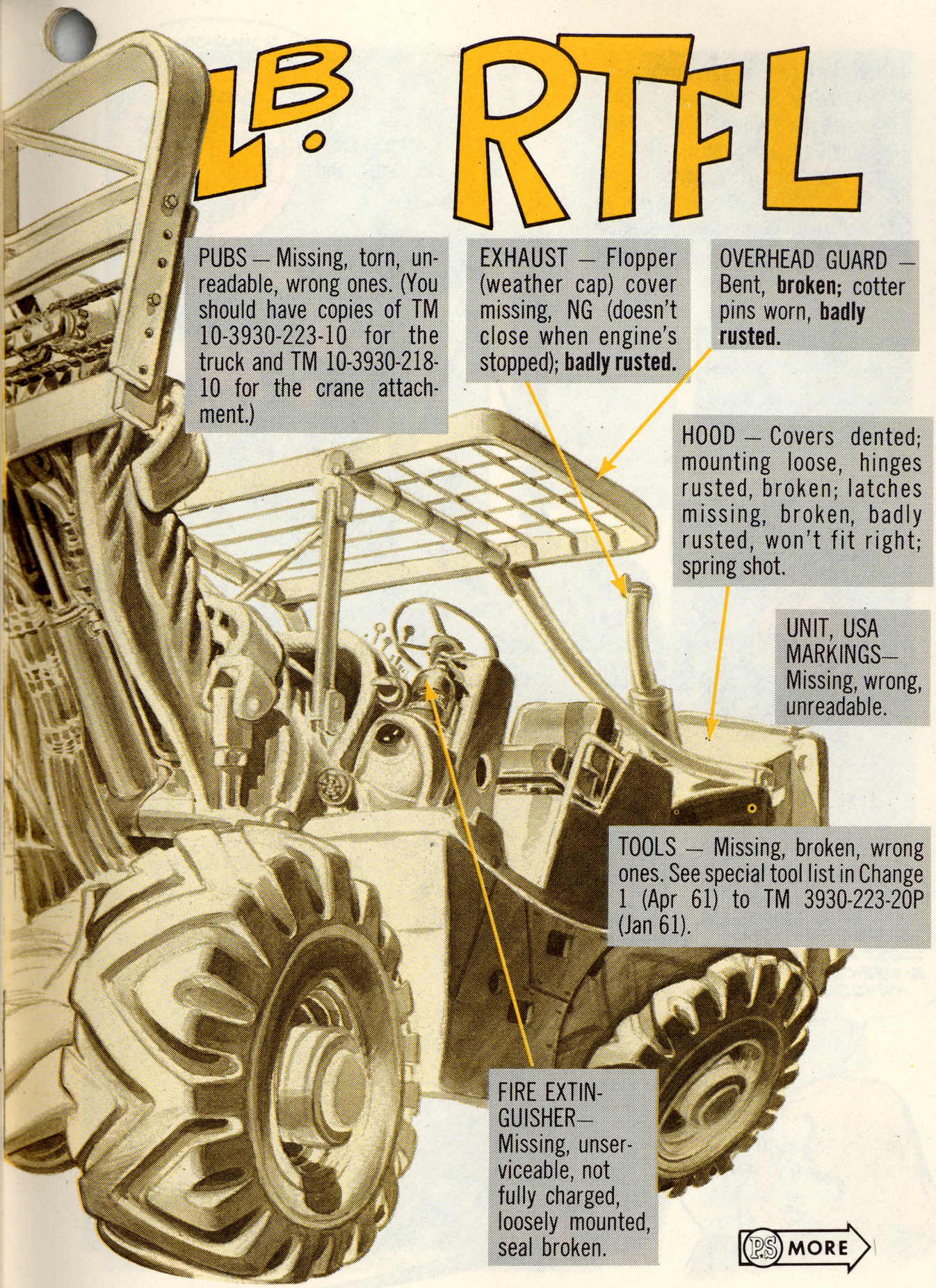
PS MORE

LB. RTFL



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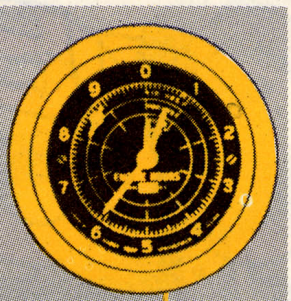
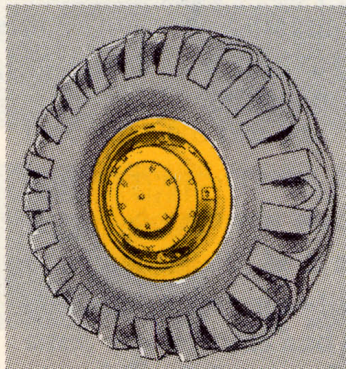
PS MORE

TIRES — **Treads dangerously worn, cut to fabric;** uneven wear, wrong pressure (see your TM); **solution missing** (crane use only); valve cap missing; mounting nuts loose, cross-threaded; lock-ring flange bent; foreign objects embedded in rubber.

HOURMETER — Not working, lens cracked, dirty, clouded; hands missing.



HORN — Won't work; bracket bent, loose; **lead wires loose, badly frayed.**

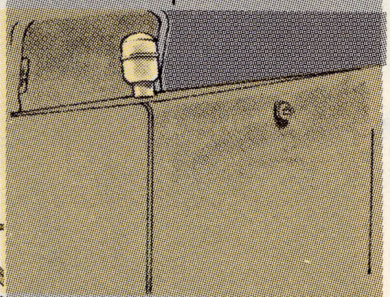


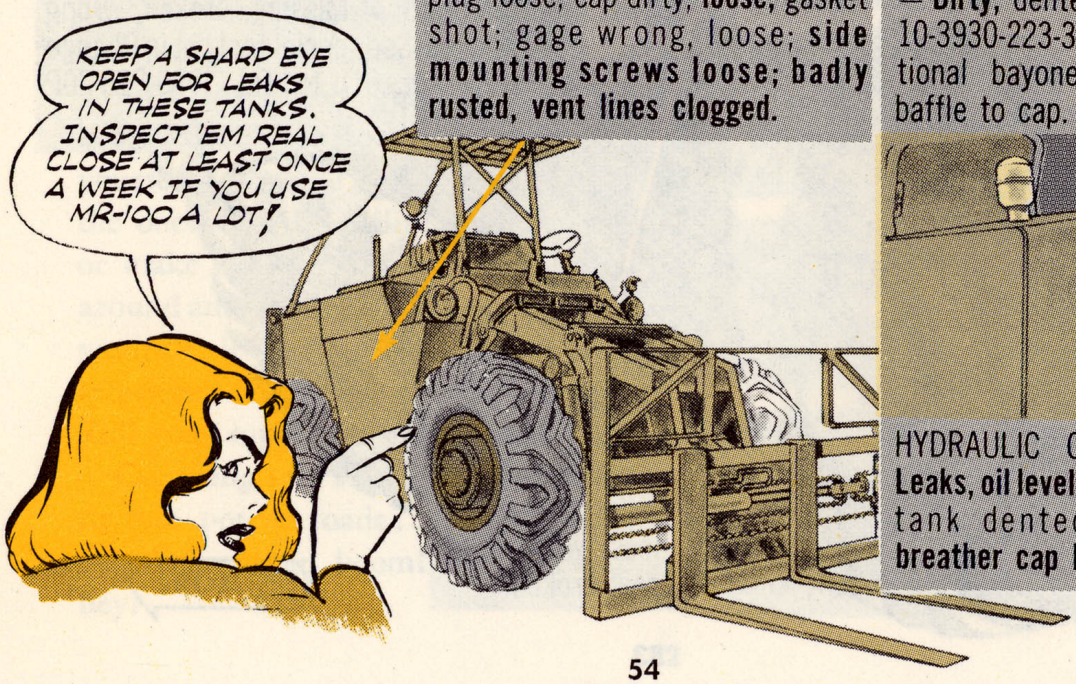
AXLE HUBS — **Leak.**

WHEELS — **Leak, need lube;** studs bent, rim and axle flange nuts missing, loose.

FUEL TANK — **Leaks,** dented; drain plug loose; cap dirty, **loose;** gasket shot; gage wrong, loose; **side mounting screws loose; badly rusted, vent lines clogged.**

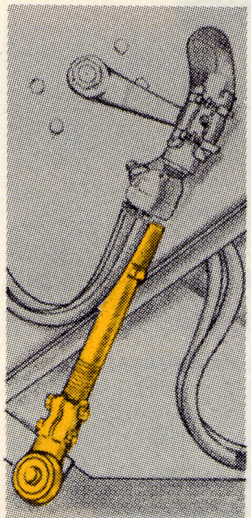
HYDRAULIC OIL TANK CAP — **Dirty,** dented. See MWO 10-3930-223-30/3 for additional bayonet gage and baffle to cap.





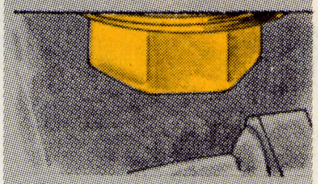
HYDRAULIC OIL TANK — **Leaks, oil level low; oil dirty;** tank dented; **fill and breather cap loose, dirty.**

VACUUM BRAKE CHAMBER AND TANK — Tank and fittings dirty; **holes, cracks,** rust spots in tank and chamber. Bleeder screw loose; tubes and hoses leak, bent; hose clamps loose, rusted.

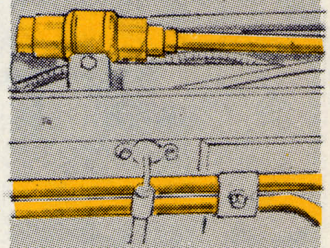


DRAG LINK — **Leaks, needs lube,** loose, worn.

TORQUE CONVERTER DRAIN PLUG — **Leaks,** dirty, loose.

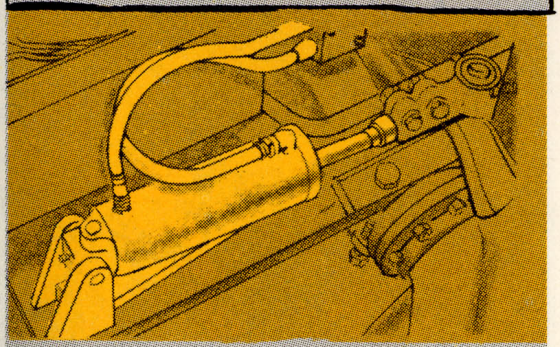


BRAKE LOCK — **Won't work, wiring loose at terminals.**



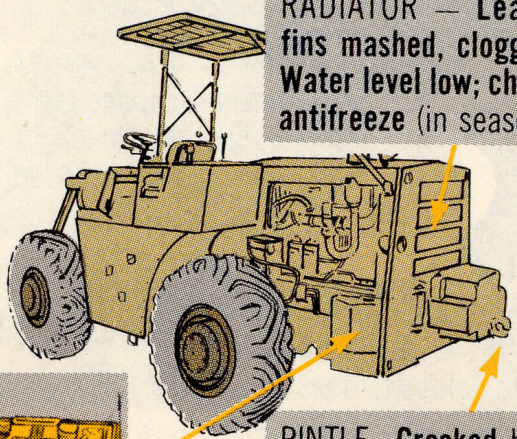
BRAKE LINES— **Leak;** fittings badly worn, mountings loose.

STEERING GEAR HOUSING—Leaks at oil seals and gaskets; loose bearings; needs adjusting.

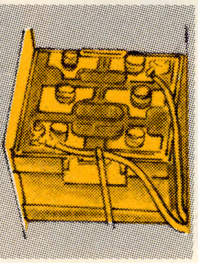


STEERING BOOSTERS, LOCK VALVES — Leak, mountings loose; hoses, fittings and tubes leak, kinked, hooked up wrong.

RADIATOR — **Leaks, fins mashed, clogged. Water level low; check antifreeze** (in season).

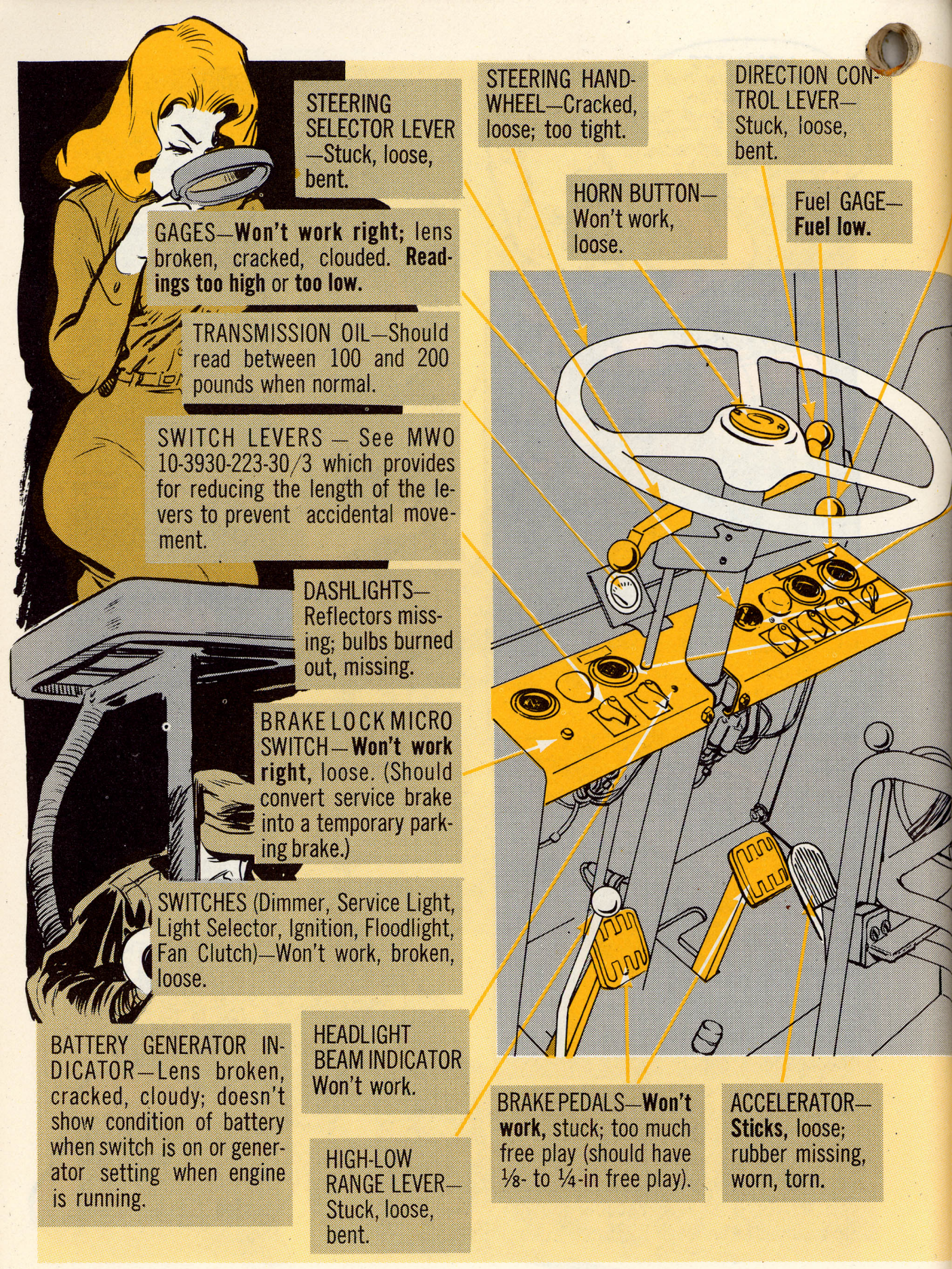


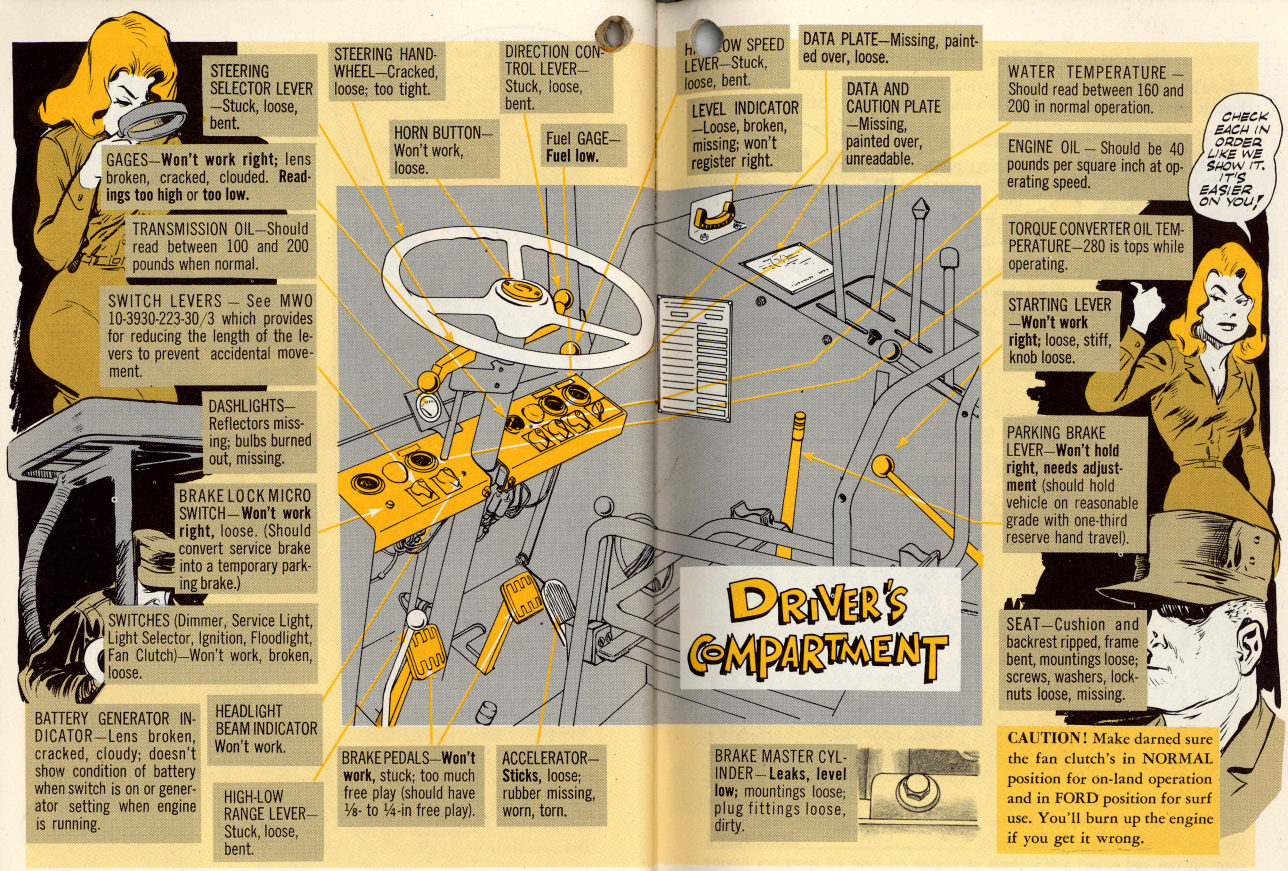
BATTERIES—**Cracked, cases leak.** Loose, **corroded posts, straps,** holddowns. Terminals, cables loose, corroded. **Filler caps missing, loose;** vent holes clogged. **Electrolyte level low; specific gravity low** (should be between 1.275 and 1.285.)



PINTLE—**Cracked,** hexagon nuts and cotter pins missing, badly rusted. Coupler needs lube.

P.S. MORE


STEERING SELECTOR LEVER—Stuck, loose, bent.
GAGES—**Won't work right;** lens broken, cracked, clouded. **Readings too high** or **too low.**
TRANSMISSION OIL—Should read between 100 and 200 pounds when normal.
SWITCH LEVERS — See MWO 10-3930-223-30/3 which provides for reducing the length of the levers to prevent accidental movement.
DASHLIGHTS—Reflectors missing; bulbs burned out, missing.
BRAKE LOCK MICRO SWITCH—**Won't work right,** loose. (Should convert service brake into a temporary parking brake.)
SWITCHES (Dimmer, Service Light, Light Selector, Ignition, Floodlight, Fan Clutch)—Won't work, broken, loose.
BATTERY GENERATOR INDICATOR—Lens broken, cracked, cloudy; doesn't show condition of battery when switch is on or generator setting when engine is running.
HEADLIGHT BEAM INDICATOR Won't work.
HIGH-LOW RANGE LEVER—Stuck, loose, bent.
STEERING HAND-WHEEL—Cracked, loose; too tight.
DIRECTION CONTROL LEVER—Stuck, loose, bent.
HORN BUTTON—Won't work, loose.
Fuel GAGE—**Fuel low.**
BRAKE PEDALS—**Won't work,** stuck; too much free play (should have ⅛- to ¼-in free play).
ACCELERATOR—**Sticks,** loose; rubber missing, worn, torn.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ACCELERATOR—**Sticks,** loose; rubber missing, worn, torn.
H... LOW SPEED LEVER—Stuck, loose, bent.
LEVEL INDICATOR—Loose, broken, missing; won't register right.
DATA PLATE—Missing, painted over, loose.
DATA AND CAUTION PLATE—Missing, painted over, unreadable.
WATER TEMPERATURE—Should read between 160 and 200 in normal operation.
ENGINE OIL—Should be 40 pounds per square inch at operating speed.
TORQUE CONVERTER OIL TEMPERATURE—280 is tops while operating.
STARTING LEVER—**Won't work right;** loose, stiff, knob loose.
PARKING BRAKE LEVER—**Won't hold right, needs adjustment** (should hold vehicle on reasonable grade with one-third reserve hand travel).
SEAT—Cushion and backrest ripped, frame bent, mountings loose; screws, washers, locknuts loose, missing.
BRAKE MASTER CYLINDER—**Leaks, level low;** mountings loose; plug fittings loose, dirty.
CHECK EACH IN ORDER LIKE WE SHOW IT. IT'S EASIER ON YOU!
CAUTION! Make darned sure the fan clutch's in NORMAL position for on-land operation and in FORD position for surf use. You'll burn up the engine if you get it wrong.
DRIVER'S COMPARTMENT

P.S. MORE

H[illegible]OW SPEED LEVER—Stuck, loose, bent.

DATA PLATE—Missing, painted over, loose.

LEVEL INDICATOR—Loose, broken, missing; won't register right.

DATA AND CAUTION PLATE—Missing, painted over, unreadable.

WATER TEMPERATURE—Should read between 160 and 200 in normal operation.

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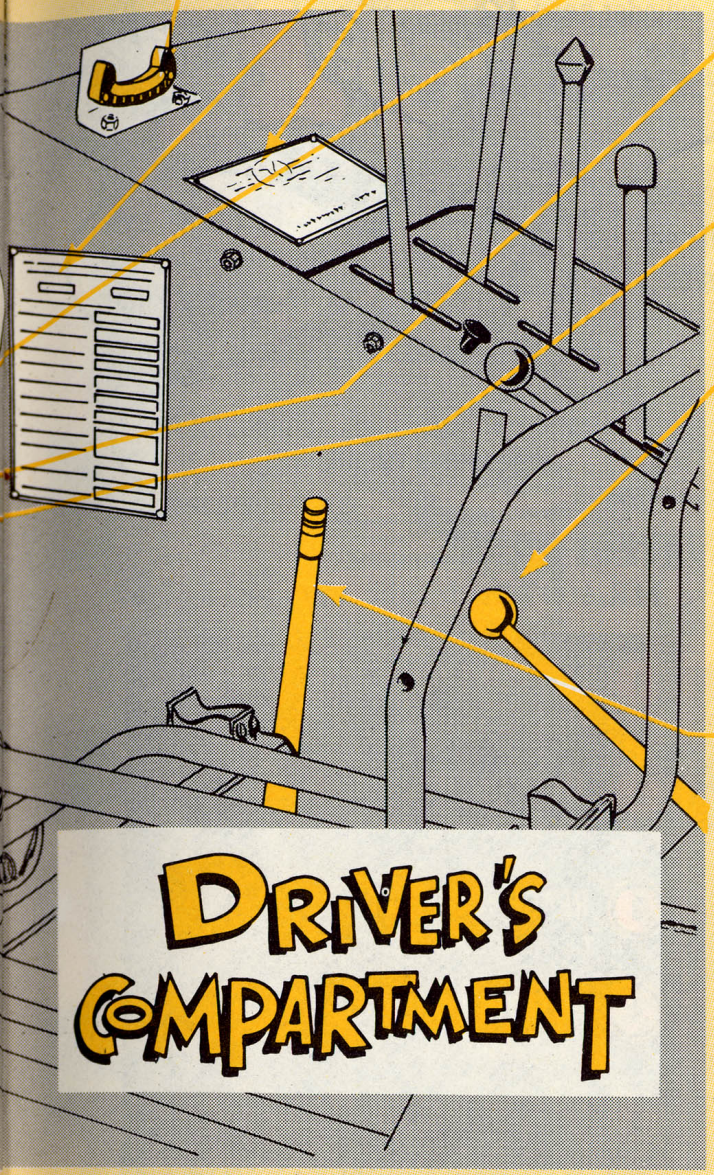
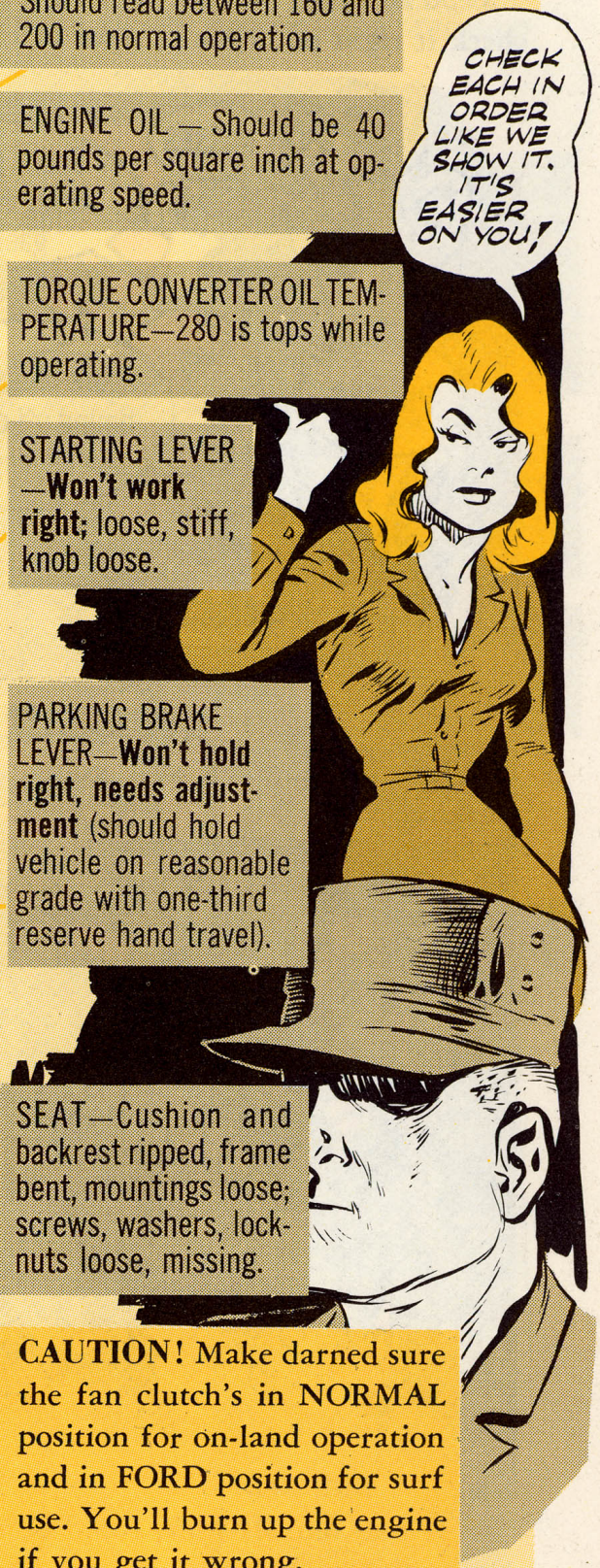


DRIVER'S COMPARTMENT

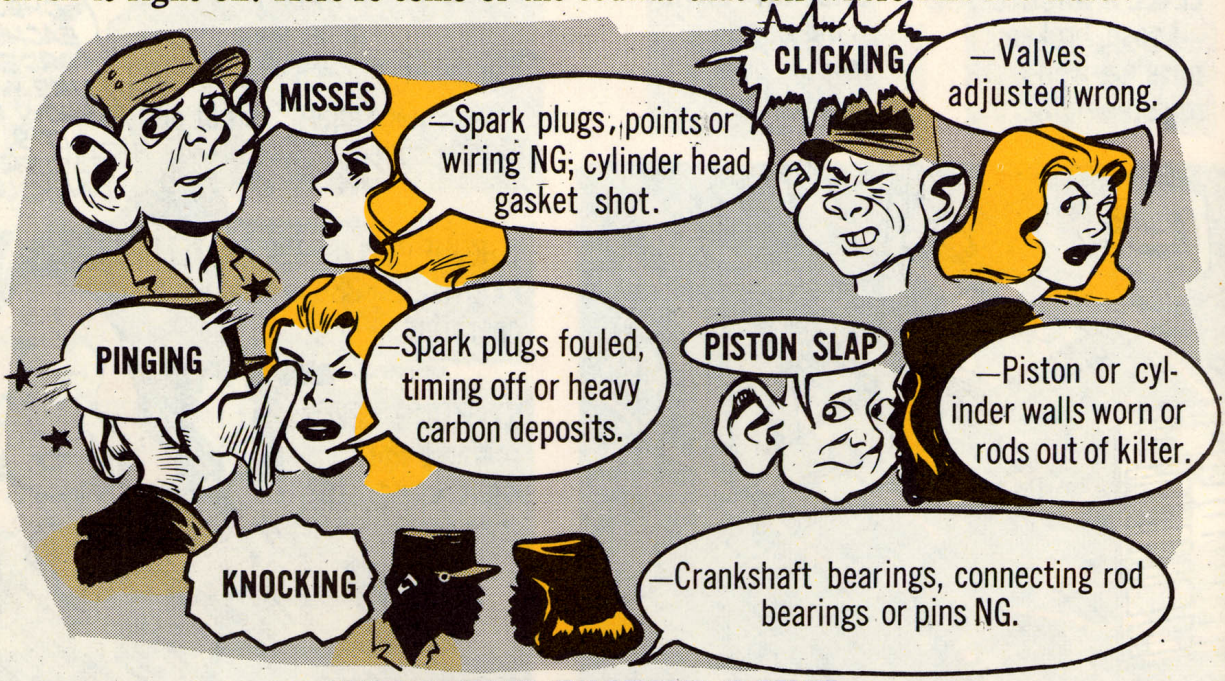


CAUTION! Make darned sure the fan clutch's in NORMAL position for on-land operation and in FORD position for surf use. You'll burn up the engine if you get it wrong.

P.S. MORE

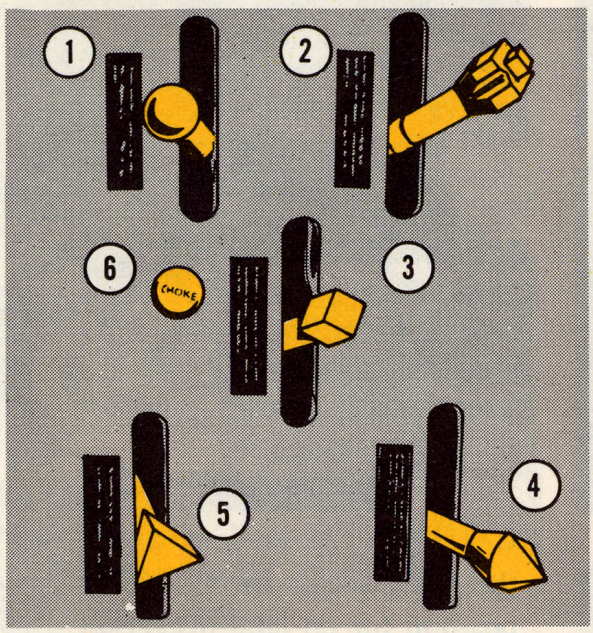
START 'ER UP

Lend an ear to the tune your rig's playing. If anything sounds off key, double-check it right off. Here're some of the sounds that tell where MR-100 hurts:

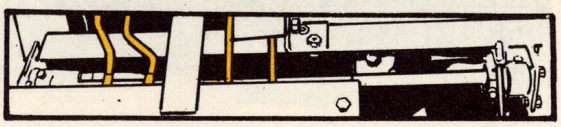


HYDRAULIC SYSTEM PANEL

While the engine's still going, give MR-100's hydraulic muscles a short workout.



1. **LIFT CONTROL**—Stuck, loose, bent, knob missing.
2. **TILT CONTROL**—Stuck, loose, bent, knob missing.
3. **REACH CONTROL**—Stuck, loose, bent, knob missing.
4. **ROTATION CONTROL**—Stuck, loose, bent, knob missing.
5. **SIDE-SHIFT CONTROL**—Stuck, loose, bent, knob missing.
6. **CHOKE CONTROL**—Won't work freely.



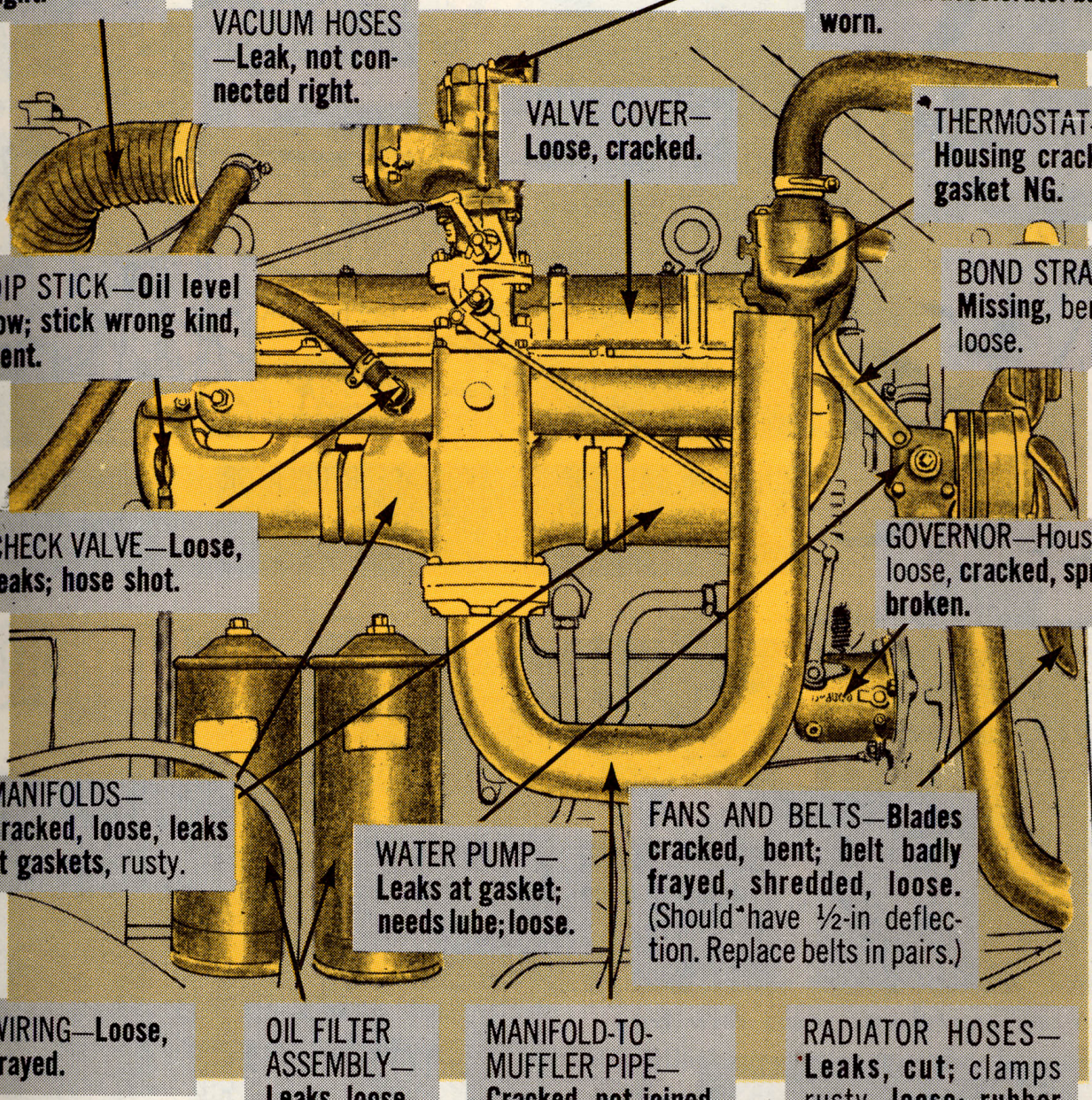
If the controls stick, could be the hydraulic control linkage is rusty. Fetch your oil can and squirt a few shots of engine oil onto all spots not having

grease fittings. Control lever lockout devices were included in MWO 10-3930-223-30/3 for use during crane operation. Also included in this MWO was a hand throttle to make it easier to start up and maintain engine speed during warm-up period.

ENGINE

(Waukesha MHE 165 and Continental MHE 173)

Left (DRIVER'S) Side



PS MORE

ON THE RIGHT SIDE

ENG

DISTRIBUTOR—Loose, dirty; **cap and rotor cracked; wiring loose.**

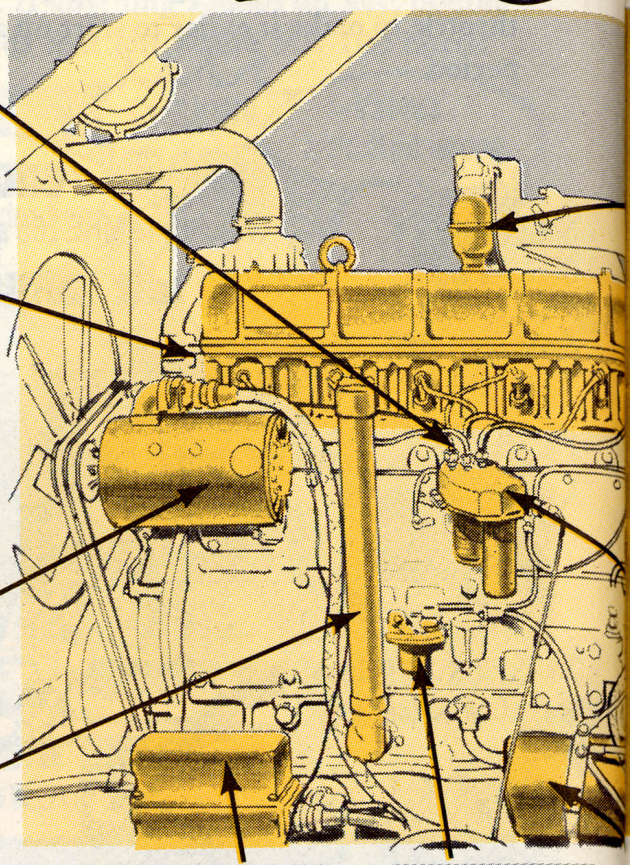
CYLINDER HEAD — **Cracked, compression or water leaks** (a hissing sound and rough-running motor are the tip-offs).

SPARK PLUGS—**Loose, rusty, cracked, dirty; cables loose, worn, badly frayed.**

GENERATOR — Mounting bolts, connections loose, body rusted, belt and pulley loose.

OIL FILLER—Cracked, **cap missing,** dirty.

IGNITION CABLES — Loose, **badly frayed,** worn.

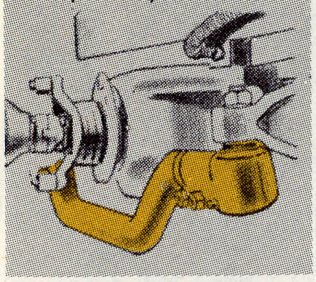


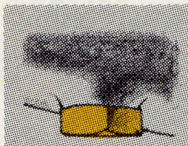
VOLTAGE REGULATOR —Wires loose, **frayed;** brackets loose.

FUEL PUMP—Loose, **leaks.**

UNDER

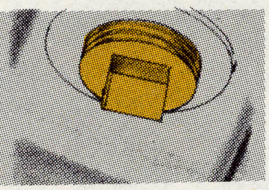
UNIVERSAL JOINTS, TIE ROD ENDS—**Loose, bent, worn, need lube.**



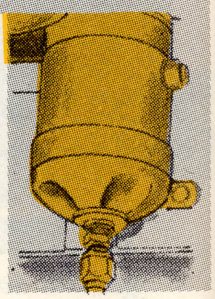


CRANKCASE DRAIN PLUG — **Loose, leaks** (means gasket's shot or loose).

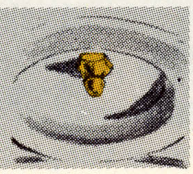
STEERING GEAR —**Housing drain plug loose, leaking.**



TRANSMISSION OIL FILTER —**Leaks, ioose connections.** Brackets rusted loose. **Cap dirty,** loose, **missing.** Cover loose.



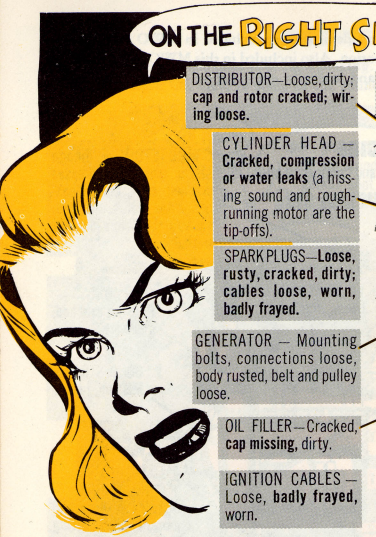
CONSTANT VELOCITY JOINTS —Oil level low.



DIFFERENTIALS — **Loose, leaks, oil level low;** breather dirty, bent.

ON THE RIGHT SIDE

ENGINE



DISTRIBUTOR—Loose, dirty; **cap and rotor cracked; wiring loose.**

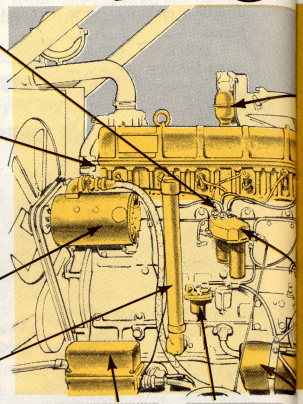
CYLINDER HEAD—**Cracked, compression or water leaks** (a hissing sound and rough-running motor are the tip-offs).

SPARK PLUGS—**Loose, rusty, cracked, dirty; cables loose, worn, badly frayed.**

GENERATOR—Mounting bolts, connections loose, body rusted, belt and pulley loose.

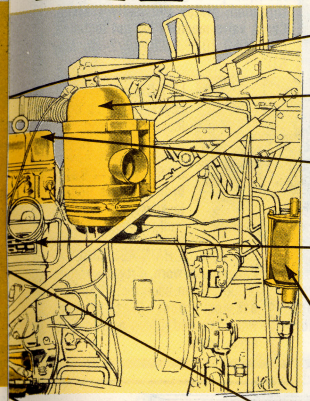
OIL FILLER—Cracked, **cap missing,** dirty.

IGNITION CABLES—Loose, **badly frayed,** worn.



VOLTAGE REGULATOR—Wires loose, **frayed;** brackets loose.

FUEL PUMP—Loose, **leaks.**



BREATHER CAP—Cracked, **missing,** dirty.

AIR CLEANER—**Dirty, oil level low** (below line on oil cup). Hose worn, **leaks.**

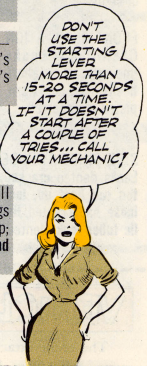
ROCKER ARM COVER—Leaks oil (could mean it's loose, cracked or gasket's shot).

CAUTION PLATE—Missing, can't read.

ACCUMULATOR—Shell dented, cracked; mountings loose; air leaks around cap; cap loose; **oil leaks around valve;** valve loose.

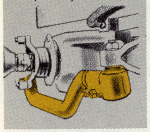
STARTING MOTOR—Bracket loose, body rusted.

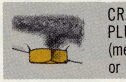
IGNITION COIL—Dirty, **loose.**



UNDER VEHICLE

UNIVERSAL JOINTS, TIE ROD ENDS—**Loose, bent, worn, need lube.**





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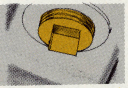
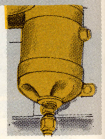


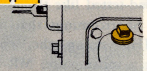
TRANSMISSION OIL FILTER—**Leaks, loose connections.** Brackets rusted loose. **Cap dirty,** loose, **missing.** Cover loose.



CONSTANT VELOCITY JOINTS—Oil level low.

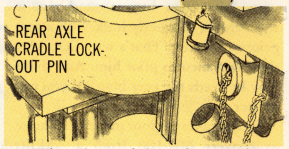
DIFFERENTIALS—**Loose, leaks, oil level low;** breather dirty, bent.

TRANSMISSION PLUGS—**Leak, level low,** pins worn.



STEERING LINK—**Loose,** worn, bent, **needs lube.**

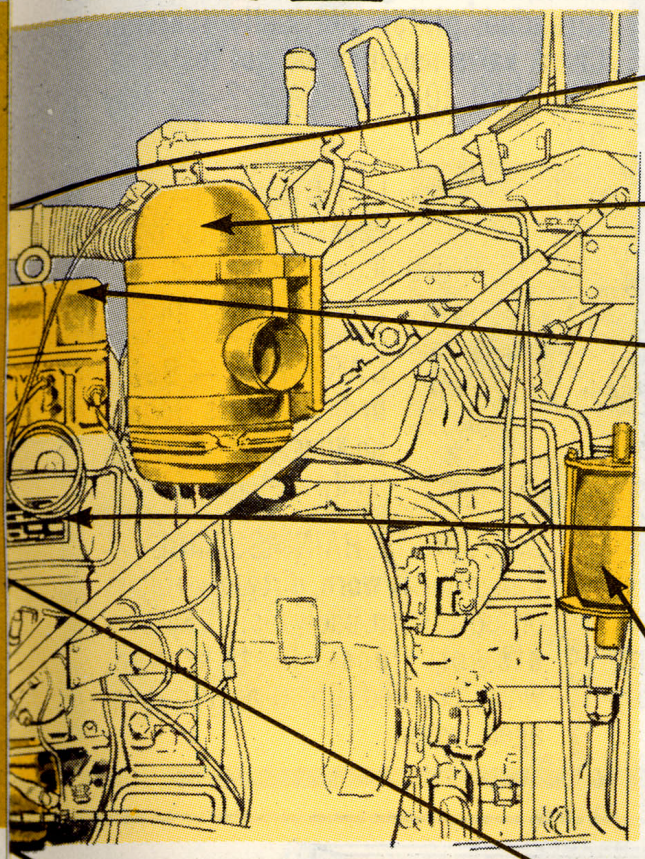
CONTROL LEVERS—**Linkage loose, bent,** worn. Needs lube; **oil cup covers missing,** bent.



When the truck is used as a forklift, the rear oscillation cylinder must be placed in the storing brackets. When used with crane attachment, the rear oscillation cylinder must be changed to operating position. The rear axle cradle lockout pin is used only during change-over of the rear oscillation cylinder.

MORE

INE



BREATHER CAP—Cracked, **missing,** dirty.

AIR CLEANER—**Dirty, oil level low** (below line on oil cup). Hose worn, **leaks.**

ROCKER ARM COVER—Leaks oil (could mean it's loose, cracked or gasket's shot).

CAUTION PLATE—Missing, can't read.

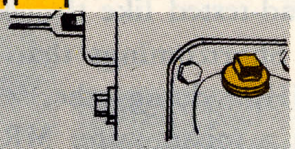
ACCUMULATOR—Shell dented, cracked; mountings loose; air leaks around cap; cap loose; **oil leaks around valve;** valve loose.

STARTING MOTOR—Bracket loose, body rusted.

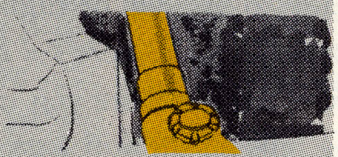
IGNITION COIL—Dirty, **loose.**

VEHICLE

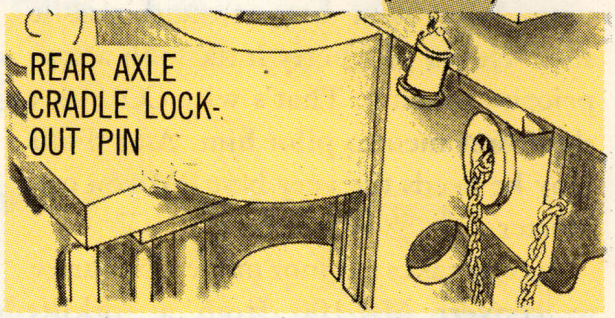
TRANSMISSION PLUGS—**Leak, level low,** pins worn.



STEERING LINK—**Loose,** worn, bent, **needs lube.**



CONTROL LEVERS—**Linkage loose, bent,** worn. Needs lube; **oil-cup covers missing,** bent.



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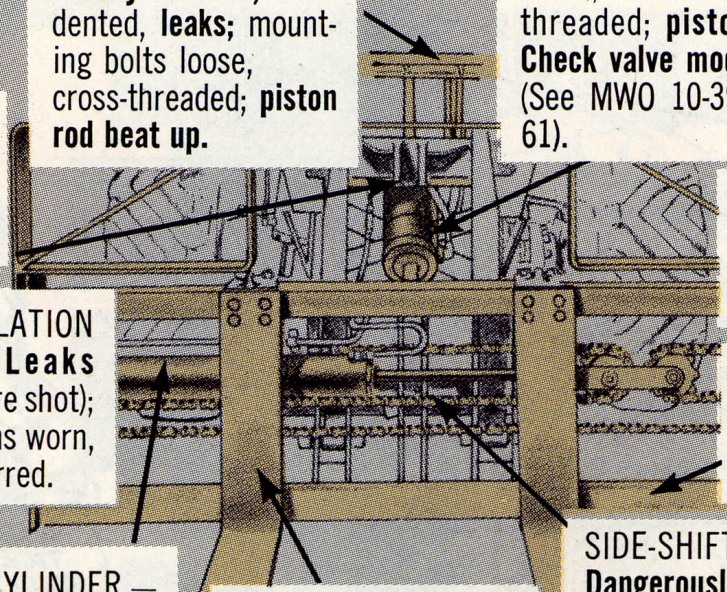
PS MORE



EXTENSION CYLINDER —**Body cracked,** dented, **leaks;** mounting bolts loose, cross-threaded; **piston rod beat up.**

TILT CYLINDER—**Body cracked,** dented, leaks; mounting bolts loose, cross-threaded; **piston rod badly scarred. Check valve modification not installed.** (See MWO 10-3930-223-20/2—15 May 61).

SLIDES—**Cracked,** bent, need lube (graphite).

LIFT CYLINDER—**Leaks,** mounting bolts loose, piston rod scarred, needs lube.

FRONT OSCILLATION CYLINDER — **Leaks** (means seals are shot); **needs lube;** pins worn, piston rod scarred.

CARRIAGE — Bent, **broken,** nuts loose, **locking pins missing,** badly rusted.

SIDE-SHIFT CYLINDER — **Leaks,** dented, **cracked, piston rod beat up; locknuts loose, badly rusted. Hydraulic tubes leak,** dented.

FORKS—**Bent, broken,** nuts loose, **locking pins missing,** badly rusted.

SIDE-SHIFT CHAIN ASSEMBLY — **Dangerously worn,** dirty, dry; rollers pitted, broken, badly rusted. **Sprockets** worn, **loose. Teeth broken,** worn, cracked. Chain anchor damaged, worn.

VEHICLE ATTACHMENTS

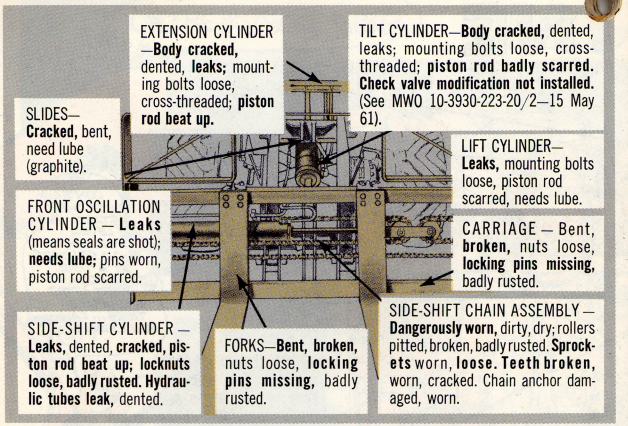
The crane attachment's what makes your MR-100 a hero around missile sites. He's a real hefty hulk with a top-priority mission. That's why CO's pick their best men to pilot him. And that's why he needs the very best PM you can muster.

It only takes a minor make-up change to convert MR-100 from a forklift truck to a crane, but there's a whale of a lot of PM to watch out for when you make the change. Handle the parts real gentle and make sure you get all hydraulic quick-disconnects tight. And don't forget to see that dust plugs are used or stored right.

You can't be too careful when you install the crane attachment. Make sure the hydraulic lines are hooked up right. And make real sure the crane's been load-tested like the TM says.

Shortcomings that might get by in MHE's doing other work won't get by at a missile site. MR-100's got to be ready to go, day or night.

Incidentally, here's a free tip that'll save sweat: Before you insert the locking pins on the stiff legs, coat 'em with grease. This'll make it easier getting the attachment apart later on, too. This grease'll help even after the pins've been shaved down, like it calls for in MWO 10-3930-223-30/3.



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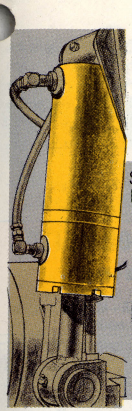
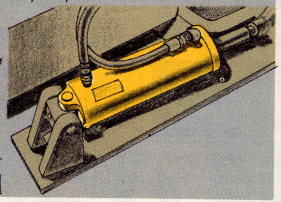
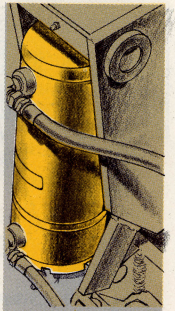


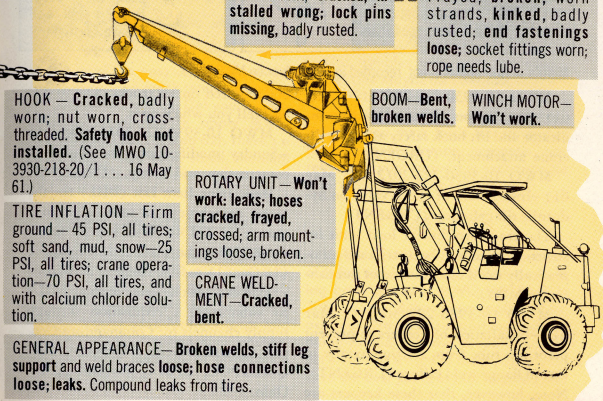
Keep a real eagle eye open to see that the capscrew socket heads in the hydraulic cylinders — and especially the oscillation cylinder — have not worked loose. Inspect 'em regularly and keep 'em tight.

SLAVE CYLINDER — **Badly worn, needs lube; bent, loose.**





REAR OSCILLATION CYLINDER — **Leaks, needs lube;** pins worn, piston rod scarred.



PS MORE

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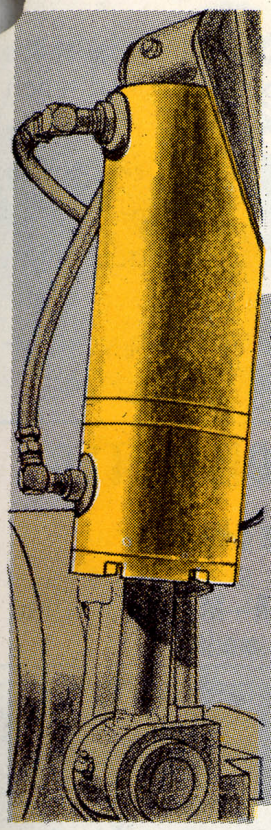

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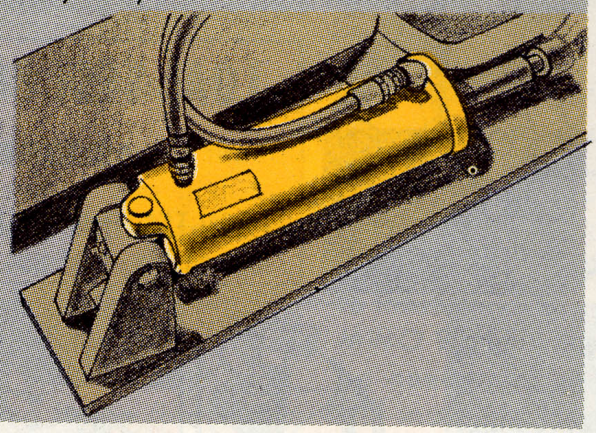
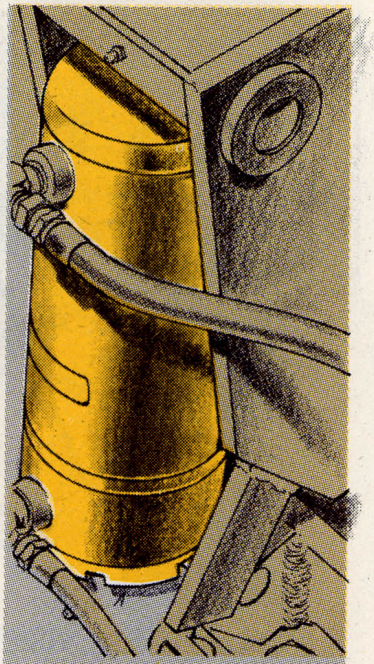
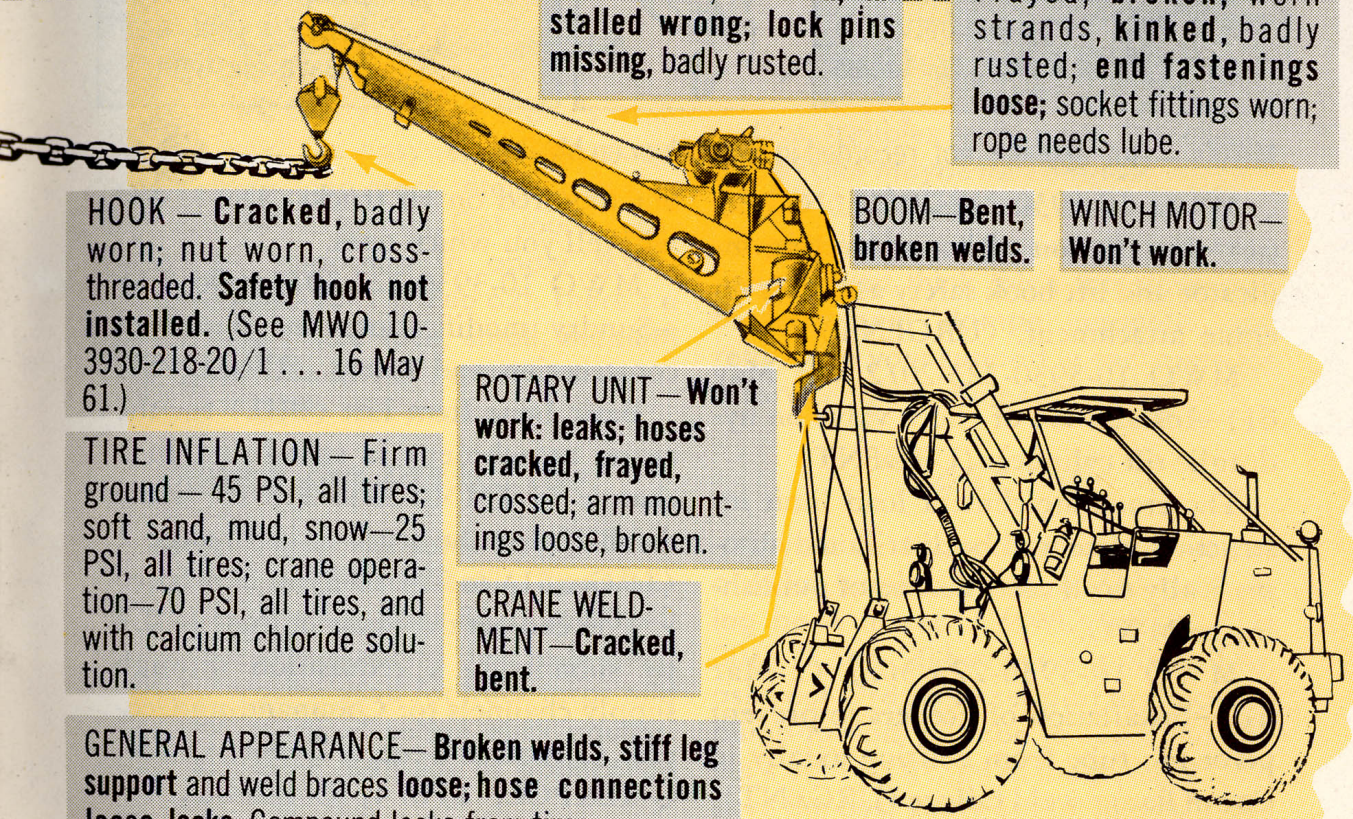




REAR OSCILLATION CYLINDER — **Leaks, needs lube;** pins worn, piston rod scarred.

STIFF LEGS — Legs and braces bent, **cracked, installed wrong; lock pins missing,** badly rusted.

WIRE ROPE ASSEMBLY — Frayed, **broken,** worn strands, **kinked,** badly rusted; **end fastenings loose;** socket fittings worn; rope needs lube.



HOOK — **Cracked,** badly worn; nut worn, cross-threaded. **Safety hook not installed.** (See MWO 10-3930-218-20/1 . . . 16 May 61.)

BOOM—**Bent, broken welds.**

WINCH MOTOR—**Won't work.**

ROTARY UNIT—**Won't work: leaks; hoses cracked, frayed,** crossed; arm mountings loose, broken.

TIRE INFLATION — Firm ground — 45 PSI, all tires; soft sand, mud, snow—25 PSI, all tires; crane operation—70 PSI, all tires, and with calcium chloride solution.

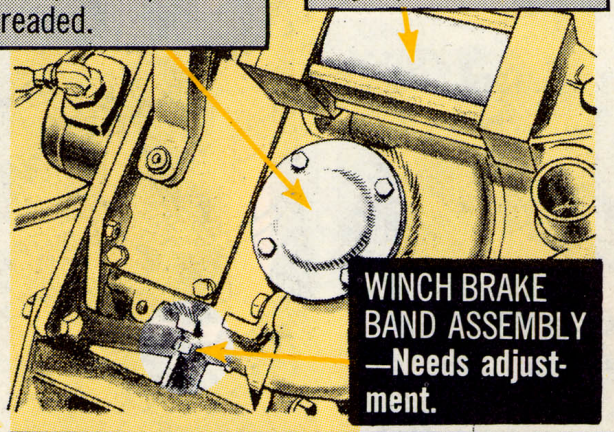
CRANE WELDMENT—**Cracked, bent.**

GENERAL APPEARANCE—**Broken welds, stiff leg support** and weld braces **loose; hose connections loose; leaks.** Compound leaks from tires.

PS MORE

WINCH ASSEMBLY — Badly rusted, loose, **mounted wrong,** needs lube; **cover and mounting nuts and bolts loose,** worn, cross-threaded.

HYDRAULIC CYLINDER BRAKE—Badly rusted; **brake assembly too loose or too tight; hoses leak,** kinked, frayed, worn.



WINCH BRAKE BAND ASSEMBLY **—Needs adjustment.**

(Crane used for handling missiles and explosives must be load-tested when the vehicle enters service and thereafter every six months or 500 operating hours, or after any hydraulic part's been replaced. The dope must be stenciled on the crane and written in the crane's jacket file. Para 15 of your organizational manual has the dope.)

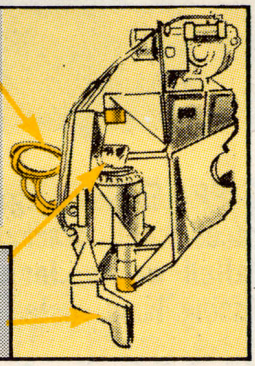
LOAD TEST COMPLETED

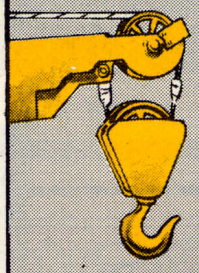
15 JUNE 1960

LOAD-TESTING DATA—Missing, wrong, unreadable. **Test not made.**

HYDRAULIC HOSES—**Breaks, cuts, badly worn, kinked;** dust caps missing, **dirty; quick-disconnect plugs and sockets cracked;** threads stripped.

CRANE PIVOTS (top and bottom)— **Cracked, welds broken; need lube.**





LOAD BLOCK AND SHEAVE — Cracked, bent; sharp edges and burrs; **bearing badly worn, needs lube; boom end sheave too tight.**

MWO's — Not applied; not recorded in log book or on MWO plate.

MWO 10-3930-218-20/1 (16 May 61)—Installation of boom leveling indicator and lift hook safety assembly on crane attachment. (URGENT)

MWO 10-3930-223-20/2 (15 May 61)—Installation of check valve on hydraulic tilt cylinder. (URGENT)

The crane attachment load limit instruction plate will be distributed automatically to all users instead of publishing an MWO.

MWO 10-3930-223-30/1 (2 Mar 61)—Installation of keepers to prevent pivot pin tube from shifting axially in case of flange weld failure (URGENT). Note, however, that these keepers are not required on all trucks. The MWO will tell you which ones.

MWO 10-3930-223-30/3 (Oct 61)—Sundry modifications for improved construction and safety. (URGENT).

Basic Issue Item List (BIIL) for the crane attachment is scheduled in a change to TM 10-3930-218-10, while the BIIL for the truck is in Change 2 (16 Oct 61) to TM 10-3930-223-10.

You can get the items in these BIIL's by submitting a requisition through supply channels to: Commanding General, Columbus General Depot, ATTN: QME&PCC, EPS/4, Columbus 15, Ohio.

Connie Rodd's BRIEFS

Keep your distance

Taxiing one bird too close on the tail of another being run-up can give you more of a blast than you bargained for . . . could flip your bird on its back! That's why TM 1-1-1-309 (3 Feb 61), "Ground Operation, Service and Maintenance of Aircraft," para 15b(8) says, in effect—no passing to the rear within 200 feet of a jet blast or 100 feet of a prop blast.

Aph-5 oxygen mask

Mohawk (AO-1) aviators! She's waiting for you! The easy-to-remove, easy-to-adjust oxygen mask retention device for your APH-5 helmet. Get your organizational repairman to apply MWO 10-8415-202-20/1 (7 Feb 62). There's a kit for every size face, small, medium and large. The MWO's an urgent!

Good for tarps, too!

Yep, it's true! The same stuff (Mildew Resistant Compound, Textile: Spec MIL-C-13295, Type I) FSN 8030-264-3840 (5 gal) recommended for re-treating tentage can be used for truck tarps and all other kinds of cotton duck paulins. And the same methods of application go for 'em all, too.

M60 tank tanks

Having trouble with the fuel tanks on your M60 battle-wagon? Do they come up with leaks after your tank bounces over some rough terrain? If your answer to these questions is a big, fat, YES, then MWO 9-2350-215-30/11 (Jan 62) may be needed to supply a mounting that will make the fuel tanks ride like eggs in a crate. This is an URGENT type MWO, so get your support to put it on . . . like right away, man!

Aiming circle blues

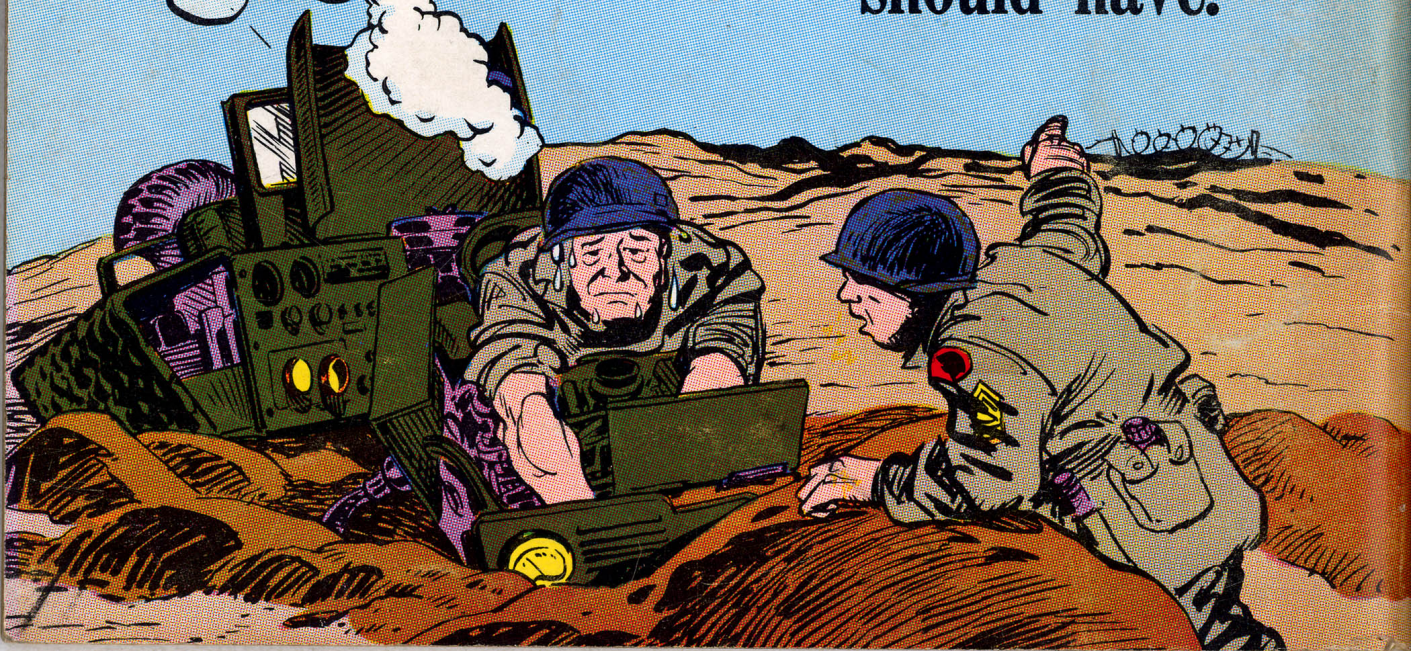
Got troubles with your M2 aiming circle? Like maybe the compass needle's stuck? Could be the chrome-plated damper in the reticle assembly is magnetic. If you think this's the story—tag the instrument "damper magnetic" and return it to your support in exchange for a serviceable instrument.

Tight tube

If your G744-series 5-ton truck wears a serial number below 65761, scan its log book to see if MWO 9-2320-211-30/1 (2 Sep 58) has been applied. If so, ask your Ordnance support to check the pump-to-float oil tube to see if the hex nut's holding it tight at the pump. Could save the best years of that engine's life.

Would You Stake Your Life on the Condition of Your Equipment?

671.60

HARD WORK

is an accumulation of easy things you didn't do when you should have.